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ORIGINAL LECTURES.

POLIOMYELITIS ANTERIOR CHRONICA.

An Abstract of a Clinical Lecture.

BY JAMES STEWART, M.D.,

PROFESSOR OF PHARMACOLOGY AND THERAPEUTICS IN MCGILL UNIVERSITY, MONTREAL; AND DIRECTOR OF THE UNIVERSITY CLINIC FOR DISEASES OF THE NERVOUS SYSTEM.

By chronic poliomyelitis is to be understood, not the acutely beginning poliomyelitis which has become chronic, but that form of myelitis of the anterior horns which is essentially a chronic affection from its very commencement.

It is well known that the onset of acute poliomyelitis, or what is more commonly called infantile paralysis, is very sudden. A child goes to bed well, or is perhaps a little feverish; in the morning one limb, or perhaps a single muscular district of a limb, is paretic. In a few hours the paresis becomes paralysis, while at the same time other muscular districts become rapidly weak, and soon powerless. In the course of two or three days the disease has reached its full extent. If any change takes place afterward, it is one toward recovery. In chronic poliomyelitis the onset is very gradual, and is not attended by any general febrile disturbance. The disease creeps slowly along, taking weeks, and even months before an apparent weakness becomes a decided paresis or paralysis.

In the acute disease we are safe in saying that after the third or fourth day there will be no increase in either the extent or degree of paralysis, but in the chronic variety there is no telling when it will come to a stand-still.

The little patient before you is four years of age. She first came under my observation two years ago at the University Dispensary, when she was suffering from complete paralysis of the muscles of the legs and feet.

The child was in perfect health up to the end of her first year, being able to walk and run about with greater alacrity than children generally do when twelve months old. At this time she was taken ill with a severe chronic diarrhœa, which lasted for four months. During the latter four weeks of the course of this trouble, the mother began to notice that she did not move either lower limb as freely as she formerly did. This weakness of the lower extremities slowly increased, but it was fully three months before it had developed into a complete paralysis.

She is the youngest of eight children, five of whom are living and three died in infancy. The cause of death in two was diarrhœa, while the third died from bronchitis. Father and mother are living and in good health.

State when she came under observation two years ago.—There was complete paralysis of the muscular districts of the feet and legs supplied by the crurals, and paresis of those innervated from the lumbar plexus. Flexion and extension of the knee-joints were very imperfect. The hip-joint movements were also very limited.

She did not at that time complain of any pain in her lower limbs or elsewhere, nor had there been any symptom of suffering from the beginning of the trouble. The paralyzed muscles were soft and flaccid. There was considerable atrophy of the paralyzed and paretic muscles. The thigh muscles were, however, of fair volume. There was an entire absence of both the patellar and plantar reflexes.

There was complete loss of the faradic irritability of the nerves and muscles of the lower limbs.

There was no response from galvanization of the nerves of the lower limbs, but there was slow contraction of the muscles when they were directly galvanized. There was, however, no change in the normal electrical formula: the KSZLAOZ.

There was no interference with the functions of the bladder and rectum.

There was no motor or sensory disorder of the upper extremities.

The child continued in the state just described for some two months after coming under observation. During this period no treatment was instituted, except the internal use of arsenic.

The proper treatment of the case was commenced about two months after her condition had remained stationary for several weeks. It consisted in the use of galvanism, the anode (labile) being applied to the lumbar region, and the cathode (stabile) to the muscles and nerves of the lower extremities.

Progress.—After two months of the above treatment, the first traces of returning motility were observed in the peroneal districts. In the course of four months, she was able to flex and extend the toes freely, and shortly afterward she was able to stand with the aid of a chair. At the end of the sixth month of the treatment she was able to stand without any support. She has continued to progress to recovery, but very slowly, however.

Present state.—As this patient walks across the arena, you will notice that she does so without any dragging of her legs. The toes are turned outward, but this is the only sign of deficient motility, and as this abduction is steadily decreasing it is not vain to hope that before long it will completely disappear.

The muscles are of good volume. There is neither contracture nor undue flaccidity.

The patellar reflexes of both legs have not as yet reappeared, although at times there is a perceptible contraction of the left quadriceps when the patellar tendon of that side is percussed.

The modified reaction of degeneration which was formerly present has entirely disappeared. For the past six months the muscles and nerves of both limbs respond to the induced current, and since this has taken place the treatment has been mostly carried out by the use of this form of electricity.

Diagnosis.—Of the nature of this case there can, I think, be no question whatever. It is one of *spinal atrophic paralysis* of the muscles of the lower limbs, of very slow but progressive development, and due to a chronic myelitis (?) of the anterior cornua. The presence of the reaction of degeneration with the loss of the patellar reflexes, and the absence of all disorder of sensation and the non-involvement of the sphincters, prove conclusively its nature.

The symptoms may be classified as follows:

1. Positive:
   - *a.* Diffuse paralysis.
   - *b.* Atrophy of the paralyzed muscles.
   - *c.* Loss of the patellar reflexes.
   - *d.* The presence of the reaction of degeneration.

2. Negative:
   - *a.* Entire absence of sensory disorders.
   - *b.* No hypertonus.
   - *c.* Non-involvement of the sphincters.

A paralysis of central origin is excluded on account of the absence of the patellar reflexes and the presence of the reaction of degeneration. A general neuritis of the lower limbs is also excluded by the absence of any disorder of sensation and the diffuse distribution of the paralysis.

The morbid process commenced in the nuclei of origin of the sacral plexus, and very slowly ascended so as to involve the nuclei of the lumbar plexus. The latter were later and less severely affected than the former.

In the present state of our knowledge it is difficult to determine the exact character of this morbid process, and in what way it differs from the acute affection of the anterior cornua.

The case is remarkable as occurring in so young a patient. Chronic poliomyelitis is not an infrequent disease of adult life, but it is very rarely seen in children under three years of age. The acute affection is, however, essentially a disease of childhood, its occurrence in adult life being very uncommon.

The case may be briefly summarized as follows:

A child about eighteen months of age, who has been troubled with diarrhœa for four months, gradually but completely loses all power to move her lower extremities; regains this power almost completely in the course of a year and a half, while being treated by galvanism.

The favorable result in this case was looked for and promised; this prognosis being based on the published experience of Erb, Hughes Bennett, and others.

Nearly all the recorded examples have eventually recovered, and it is in this favorable ending that we have another marked difference between acute and chronic poliomyelitis. In the former no improvement can be looked for after the sixth month, while in the latter a complete cure is the rule.

ORIGINAL ARTICLES.

A CASE OF TYPHOID FEVER COMPLICATED WITH ABSCESS OF THE LIVER; AND SOME REMARKS ON THE ROSEMONT OUTBREAK OF 1885.

BY GEORGE S. GERHARD, M.D.,
OF ARDMORE, PENNSYLVANIA.

W. H., æt. twenty-six, born in Wales, a gardener by occupation, is a well-built man of large frame, and one of a family of five brothers, an only sister having died of phthisis. His parents are living and in good health, and his own health was always good until the autumn of 1881, when he had an attack of intermittent fever, contracted while he was living in a malarial region, but from this he made an excellent recovery. After this no definite illness occurred until March 2, 1885, when he was suddenly taken, while at work, with abdominal pain and vomiting. The former symptom was of short duration, but more or less irritability of stomach persisted until quite late in the evening, and on the following day, though somewhat better, he was still unable to work.

On March 4th, the patient, whom I now saw for the first time, was found to have a temperature of $101\frac{4}{5}°$, and a pulse of 92; he was notably weak, complained of pains in the extremities, and presented a marked expression of hebetude. His tongue, though moist, was heavily coated, and there was slight nausea, with tendency to loose bowels; the abdomen was somewhat full but not tender. There was cough from bronchial irritation, as shown by numerous coarse râles in the chest, but there was no dulness upon percussion in any part. The patient was ordered to have a liquid diet and to take quinine and a mineral acid.

On the 6th, the morning temperature was $102\frac{4}{5}°$, and the pulse 96; the bowels were still somewhat loose, and the abdomen was rather meteoric.

On the 14th, the note was taken that the patient was quite delirious at night, and though he was rational during the day, his hebetude was extreme, and he was excessively deaf, so much so, that he had to be spoken to in the loudest voice. The morning temperature was $102\frac{3}{5}°$, and in the evening it was 104°; the pulse was 104 in the morning and 116 in the evening. The patient had had epistaxis of moderate severity on several occasions. His cough was excessive but was not accompanied by expectoration. Physical examination revealed coarse mucous râles on both sides of the chest, and friction with impaired resonance at the right base. The tongue was heavily coated and dry, with tendency to browning in the centre. The abdomen was tympanitic, and upon its surface and upon the lower part of the chest there was a copious eruption of rose spots. The right hypochondrium was somewhat prominent, and on deep pressure there was marked tenderness of this region and of the epigastrium. The limit of absolute hepatic dulness began above the sixth rib and extended to a point below the costal border. The bowels, though confined, were exceedingly sensitive to the action of a laxative, a small teaspoonful of oil causing several thin, ochre-yellow stools. The

patient was ordered carbonate of ammonia and turpentine, with moderate stimulation in addition to his quinine, and was to have turpentine stupes applied to the chest, morning and evening.

On the 21st, the delirium at night was more pronounced, and there was occasional wandering during the day. The temperature range for the morning was from 102° to 103°, and for the evening 102⅘° to 104°; the pulse 100 to 120, was weaker and decidedly dicrotic. The cough, which was excessive, indeed, at times almost incessant, was attended with pain in the lower part of the right chest; the respirations were 36 and somewhat shallow. On the right side of the chest the dulness upon percussion began in the fourth interspace and extended beyond the border of the ribs; posteriorly on the same side the percussion note was dull from the spine of the scapula to the eighth rib, and absolutely flat from this point to the base of the chest. Above in the dull region there were lessened vocal fremitus, indistinct blowing respiration, and, on full inspiration, coarse friction. Spots were still to be seen on the abdomen and chest, but they were of a darker color and did not quite disappear on pressure. There was also a copious eruption of sudamina. Exhaustive sweats occurred daily, usually in the afternoon, leaving the patient in a state of intense prostration and calling for frequent stimulation.

On April 4th, the patient was rapidly losing flesh and appeared greatly exhausted. The pulse was exceedingly weak and there was more or less constant delirium. The tongue, tremulously protruded, was dry and brown; there was no vomiting; the bowels were quite loose again, but the frequency of the movements was under the control of small doses of opium. The abdominal symptoms were unchanged, excepting as regarded a recently developed sense of fluctuation over the right lobe of the liver, which removed all doubts, if there were any, of the existence of abscess. The cough, always dry, was still excessive and painful. The effusion in the right pleural cavity had increased, and the right lung, partly from this cause and partly from the encroachment of the enlarged liver, was pushed high up in the chest. The pain in the right side, frequently complained of, was in a measure relieved by the application of stupes.

On April 9th Dr. Hutchinson kindly examined the patient with me, more especially with a view of determining the propriety of attempting to remove the contents of the abscess by operation. On due consideration, however, a procedure of this kind was considered unjustifiable, because of the patient's low state, and because of the possibility of there being more than one abscess. The correctness of this decision, as will be seen further on, was verified by the results of the autopsy. From this time on, there was nothing especially interesting to note beyond the fact that the patient, kept alive by a retentive stomach, finally died from exhaustion on the 25th of April, the fifty-eighth day of his illness.

At the autopsy, made forty-eight hours after death, the body was found to be in a state of extreme emaciation. On opening the chest a large serous effusion was found on the right side, with patches of lymph scattered here and there on the costal and pulmonary pleura, and many easily torn adhesions.

The lung itself, though greatly compressed, was still capable of being inflated.

On the left side there was nothing especially abnormal beyond congestion of the bronchial mucous membrane, and marked emphysema of the borders of the lung.

There was no lesion of the heart.

The liver was found to be enormously enlarged, the anterior part of the right lobe being distended with thick creamy pus. Two smaller abscesses occupied the posterior border, between which and the larger one in front there was no discoverable communication. In the left lobe there was a single small collection of pus.

There were patches of recent lymph on the upper surface of the right lobe, and several adhesions of older date. The gall-bladder was normal in appearance, and there was no occlusion of any of the larger bile-ducts.

Examination of the small intestine revealed at the lower end of the ileum several patches of Peyer actively ulcerated, and others partly or wholly cicatrized.

Remarks.—The above case illustrates, judging from accounts heretofore published, a very rare complication of typhoid fever; indeed, after a search made as thorough as time would permit, I have succeeded in finding but two cases of the kind distinctly reported, both by Bueckling.

Greisinger mentions it as an occasional sequel of typhoid fever, but does not give cases, and Leudet states that cases have been observed by Louis, Andral, Barth, and Tardieu.

It seems to me, however, that in view of the well-known frequent occurrence of hepatic abscess with intestinal lesions of other diseases, particularly dysentery, that in connection with typhoid fever, a disease characterized by ulceration of the intestine, a like association may have been occasionally overlooked. Especially may this be true of localities where suppurative disease of the liver is not an uncommon disorder.

Excepting in hospitals, post-mortem examinations of typhoid fever cases are rarely, if ever, made, and in the former the condition of the liver is not always inquired into, the object of the autopsy being, as a rule, to expose the intestinal lesions for special study, or to satisfy a doubt as to the presence of perforation or other accident.

Without discussing the conflicting opinions held in regard to the pathological bearings of intestinal ulceration and hepatic abscess, it may be sufficient to state that the weight of authority inclines to the belief that in a large percentage of cases there is an intimate causal relation between the two, while, in other instances, the coexistence of the two conditions must be looked upon as purely accidental, the inflammation of the liver having actually antedated the intestinal disease.

Assuming the above view to be the correct one, it must be admitted that conditions favorable to the development of suppurative disease of the liver exist

in typhoid fever, and perhaps the attention I have drawn to the subject may be the means of calling out other reports.

In regard to the origin of this patient's illness no satisfactory explanation could be given, isolated cases of typhoid being of such rare occurrence in the country. Local outbreaks of fever, however, are far from being uncommon, even in the healthiest country district, but may always, I think, on careful investigation, be traced to their proper origin.

Such an epidemic occurred at Rosemont, on the line of the Pennsylvania Railway, last year, a brief sketch of which, in this connection, may be of some interest. According to my belief the disease originated by importation, the first case having been that of a lady, a patient of my own, who must have been actually ill with the disease at the time of her arrival at Rosemont. This belief is further strengthened by the fact that the patient had recently left a locality which was itself the scene of an outbreak of typhoid of virulent type.

The infection of a district previously healthy by the arrival in it of a person suffering from typhoid is an admitted fact, though Murchison states that "such occurrences are exceptional, and that the number of cases where the disease is introduced into a new locality without spreading, far exceeds that in which it is propagated."

In the case of the Rosemont epidemic I am sure that the disease would not have taken such a hold had its propagation not been favored by a well-known unsanitary condition of the immediate surroundings. Since this occurrence of fever, however, improvements have been made, and the lesson taught will be, I trust, a lasting one.

The case to which I have alluded as being responsible for this outbreak of fever proved so rapidly fatal, and bore such a striking resemblance to typhus, that a detailed report of it may be of interest:

Miss A., aged twenty-three, was taken ill while visiting a friend at Rosemont, on the night of June 13, 1885, having arrived from an adjoining State two days before seemingly in her usual health, which at the best of times was never good. When I was called to the patient on the 14th, I learned that she had had vomiting and diarrhœa during the night, but there was nothing to attract special attention beyond what might follow an acute gastro-intestinal attack. On the 15th, however, there was suspicious prostration, with increasing temperature, and an exceedingly feeble pulse. There were complaints of general articular pains, especially localized in the right knee, which joint was tender but not red or swollen. On the 16th the temperature was 103° in the morning and the pulse 116. There were evident hebetude and slight hesitation of speech, though no actual delirium. The tongue was red, and somewhat dry in the centre, the stomach exceedingly irritable, but retaining small quantities of milk and ammonia; the bowels inclined to looseness, and the abdomen full but not tender.

On the 17th vomiting better, and bowels not so loose; the tongue very red and irregularly coated, and there was slight tenderness in the right iliac fossa. There was delirium during the night. The patient's face was pale, the pupils dilated, and the skin hot and dry; temperature 104⅘°.

On the 18th, violent delirium during the night; there was marked subsultus and slight deafness; temperature 104°; pulse 120, and dicrotic; first sound of the heart almost inaudible; slight nose-bleed.

On the 20th, periods of delirium occurred more frequently; skin hot and dry, and covered with petechiæ.

On the 21st, more or less constant delirium and intense prostration; temperature 105°; pulse 120; tongue red as before, with dry centre; teeth covered with sordes; bowels moved several times daily; abdomen quite tympanitic; petechiæ more numerous.

On the 22d, patient violently delirious, requiring the combined efforts of two nurses and an assistant to keep her in bed; refuses all nourishment.

On the 23d, death occurred during the night, the patient having become comatose.

Between the date of this case and the early part of December following, there were forty-three persons attacked with fever in Rosemont, or within a radius of two miles of that locality. All of the cases occurring outside of Rosemont were related in some way to the source of infection, either by actual intercourse with the sick on the part of the individuals attacked or by having to do daily work there, Rosemont being a centre of several trades.

Out of the forty-three cases seven ended fatally. Intestinal hemorrhage occurred in eight cases, of which three were fatal. Infrequency of diarrhœa was the rule, and in many cases the eruption was either absent or imperfectly developed. In other respects there were no peculiarities worthy of note.

ARDMORE, PA., June 11, 1886.

HOMATROPIN HYDROBROMATE.

BY EDWARD JACKSON, A.M., M.D.,
CHIEF OF THE EYE CLINIC IN THE PHILADELPHIA POLYCLINIC.

ITS VALUE AS A MYDRIATIC.

HOMATROPIN is an efficient, reliable mydriatic. Still, many who are engaged in the practice of ophthalmology do not so regard it; and their idea that its mydriatic power is weak and uncertain, finds support in the literature pertaining to it. Such an impression is supported directly by the observations of those who have used the drug, and failed to get full mydriasis and paralysis of accommodation with it; and indirectly by the testimony of those who claim complete success with it, yet evince loose notions of what constitutes complete mydriasis, or who claim to have attained the desired result by methods of application that have frequently proven ineffectual in the hands of others. That is, there is not only direct testimony against the efficiency of homatropin, but, indirectly, some of the testimony in its favor is unreliable. To meet this it must be shown, first, that certain observers have not employed the drug in such a way as to develop its full power; second, that there is other testimony in its favor that cannot be impeached.

It is true of any mydriatic that when not applied

in sufficient quantity, when the applications have not been repeated often enough, or when too long a time or too short a time is suffered to elapse after its application, the accommodation is found incompletely paralyzed. And, as of other mydriatics, this is true of homatropin. It is also true that the dose of homatropin, and the time of its maximum effect, differ from the dose and the time for other mydriatics. Hence, to use homatropin as we use atropin or duboisin is unsatisfactory. It would, for different reasons, be even more unsatisfactory to use the latter drugs as homatropin should be used.

Strength of Solution.—I have always used homatropin as the hydrobromate, dissolved in distilled water. No material deterioration has been noticed after the solution has been kept several weeks, although, like other solutions of alkaloids, it becomes infested with low forms of vegetable life. Commencing with a solution of 1 in 80, I soon increased it to 1 in 60, and later to 1 in 50 (two per cent.). The latter or a two and a half per cent. solution (1 in 40) I have used habitually for the last four years, and still find it most satisfactory. I have also used three, four, five, and ten per cent. solutions, the latter being almost a saturated solution of the samples of the drug that have come to me. Solutions of 1 to 100, 1 to 200, 1 to 500, and 1 to 5000, have also been tried. The two or two and one-half per cent. solution is preferred, because weaker solutions sometimes fail to produce complete paralysis of accommodation at the usual time, and though a one per cent. or even a weaker solution will generally and if persistently applied, probably always, secure complete paralysis of accommodation, it is inconvenient to find some accommodative power present when the time comes at which it was intended to proceed to measure the refraction. On the other hand, the drug is too costly to be wasted, and stronger solutions cannot be relied on, unless used in the same way as that chosen above. For simply dilating the pupil a strength of 1 to 500, or a grain to an ounce, is commonly sufficient; and for purposes of diagnosis it should be relied on to the exclusion of stronger solutions, or those of atropin, duboisin, daturin, or hyoscyamin in all persons who, having passed the age of fifty, have lost most of the power of accommodation, and are liable to senile glaucoma.

Repeated instillations must be used where it is desired to secure complete paralysis of accommodation. Sometimes a single instillation of a one per cent. solution will accomplish it. But, on the other hand, I have more than once seen a full instillation of a ten per cent. solution fail to give it. Two or three instillations of the two per cent. solution will almost always secure it, and four or five thorough instillations of that solution will completely paralyze the accommodation in every case. At least, I have not yet found it fail to do so. This subject is further pursued under a different heading.

The instillations must be repeated at short intervals, to get the full mydriatic effect. Say from five to ten minutes apart. The safety of such a course will appear from what is to be said of its general action. The necessity for it arises from the brevity of the influence of the drug, and the importance of getting the effect of the whole amount used, at the time that it is desired to have the accommodative power completely in abeyance.

The mydriasis produced by homatropin, used as above indicated, closely resembles that produced by atropin, duboisin, daturin, or hyoscyamin, except that it is of shorter duration. Enlargement of the pupil and paresis of accommodation begin and end together. The shortest period between the first instillation and the first noticeable change in the pupil, was seven minutes, the longest was twenty-eight minutes. Usually it was between ten and twenty minutes. The shortest period between the last instillation and complete recovery was twenty-three hours; the longest, less than ninety-six hours. Patients have stated that they had entirely recovered in as little as twelve hours, but they did not return to have the fact verified; and I have often noted remaining mydriasis in those who thought it had passed off several hours, or even a day before. On the other hand, with homatropin, as with other mydriatics, an occasional patient will continue to ascribe symptoms to the mydriatic after its effect has really passed away. The drug attains complete control of accommodation in from forty to ninety minutes after the first instillation, usually at the end of the first hour; and used according to the method above indicated, this complete control of accommodation is retained for a period of from one to six hours without further instillations. By careful instillations repeated every hour, it may be sustained indefinitely. To determine the state of refraction in young persons, the second hour after completing the cumulative instillations is the best time.

Its reliability as a mydriatic is absolute if the drug be properly used. From the brevity of its action and its cost, it is especially important that each instillation be effectually made. When other mydriatics are used, such as duboisin, the eye at any one time will feel the effect of all the instillations that have been made in the preceding three or four days. And if one or several of these have been ineffectual, the others will often be sufficient to produce the desired effect. But this would not be true of homatropin, unless the strong solution were being instilled at intervals of a half hour or less. When the instillation of the drug is entrusted to a person entirely inexperienced in such a manipulation, it is almost certain that some of the instillations will be ineffectual, and that much less of the drug will find its way into the eye than the number of instillations would lead one to suppose. This is the explanation of some cases of apparent obstinate resistance to the action of a mydriatic. Hence, I commonly instill homatropin myself. I did so in all the cases, two hundred and eighty, used as the basis of this paper.

It is not perfectly easy to determine when the power of accommodation is in complete abeyance. Only careful and somewhat prolonged testing will make this certain. To decide the point I have used three tests: First, is there complete inability to vary the distance at which fine print can be read through convex glasses? Second, do weak (quarter or half dioptric) convex and concave lenses, added to the correcting lens, equally impair distant vision?

No.	Age.	Correction under Homatropin.	Correction under second Mydriatic.
1	9	R. + 1.5 ⊃ + 3.25 cy. ax. 95° = 20/L	R. + 1.5 ⊃ + 3 cy. ax. 95° = 20/1XX
		L. + 1.5 ⊃ + 4. cy. ax. 90° = 20/L	L. + 1.5 ⊃ + 4 cy. ax. 90° = 20/L —
2	11	R. + 0.5 ⊃ + 3.75 cy. ax. 100° = 20/XL	R. — 0.5 ⊃ + 3.75 cy. ax. 100° = 20/XL
		L. + 0.75 ⊃ + 4.5 cy. ax. 85° = 20/XL —	L. — 0.5 ⊃ + 4.25 cy. ax. 85° = 20/XL
3	11	R. + 4 ⊃ + 0.5 cy. ax. 90° = 20/XXX	R. + 4 ⊃ + 0.5 cy. ax. 90° = 20/XXX
		L. + 3.5 ⊃ + 0.5 cy. ax. 90° = 20/XX —	L. + 3.5 ⊃ + 0.5 cy. ax. 90° = 20/XX —
4	12	R. + 2.25 ⊃ + 0.5 cy. ax. 90° = 20/XX	R. + 2.25 ⊃ + 0 5 cy. ax. 90° = 20/XX
		L. + 2. ⊃ + 0.5 cy. ax. 90° = 20/XX	L. + 2 ⊃ + 0.5 cy. ax. 90° = 20/XX
5	12	R. + 2.5 sph. = 20/XL	R. + 2.5 sph. = 20/XL
		L. + 2.25 sph. = 20/XXX	L. + 2.25 sph. = 20/XXX
6	12	R. + 5.5 ⊃ + 3. cy. ax. 90° = 20/L	R. + 5.5 ⊃ + 3 cy. ax. 90° = 20/L
		L. + 5.5 ⊃ + 3. cy. ax. 90° = 20/L	L. + 5.5 ⊃ + 3 cy. ax. 99° = 20/L
7	13	R. 0.5 ⊃ + 0.5 cy. ax 90° = 20/XX	R. 0.5 ⊃ + 0.5 cy. ax. 90° = 20/XX
		L. 0.5 ⊃ + 0.25 cy. ax. 90° = 20/XX —	L. 0.75 ⊃ + 0.25 cy. ax. 90° = 20/XX —
8	13	R. + 1.25 sph. = 20/XX	R. + 1.25 sph. = 20/XX
		L. + 1.25 sph. = 20/XX	L. + 1.25 sph. = 20/XX
9	14	R. — 2.25 ⊃ + 4.25 cy. ax. 107° = 20/XL	R. — 2.25 ⊃ + 4.25 cy. ax. 107° = 20/XL
		L. — 1.25 ⊃ + 3.25 cy. ax. 75° = 20/XXX	L. — 1.25 ⊃ + 3.25 cy. ax. 75° = 20/XXX
10	14	R. + 0.75 ⊃ + 0.25 cy. ax. 90° = 20/XX	R. + 0.75 ⊃ + 0.25 cy. ax. 90° = 20/XX
		L. + 0.5 ⊃ + 0.5 cy. ax. 90° = 20/XX	L. + 0 75 ⊃ + 0.25 cy. ax. 90° = 20/XX
11	15	R. — 0.75 ⊃ — 2.25 cy. ax. 170° = 20/XXX	R. — 0.75 ⊃ — 2.25 cy. ax. 170° = 20/XXX
		L. + 1 cy. ax. 100° = 20/XX	L. + 1 cy. ax. 100° = 20/XX
12	16	R. — 7 ⊃ — 1. cy. ax. 180° = 20/L	R. — 7 ⊃ — 1.25 cy. ax. 180° = 20/XL
		L. — 8.5 ⊃ — 1.5 cy. ax. 180° = 20/XL —	L. — 8.5 ⊃ — 1.5 cy. ax. 180° = 20/XL
13	17	R. + 2.75 ⊃ + 0.25 cy. ax. 90° = 20/XXV	R. + 2.75 ⊃ + 0 25 cy. ax. 90° = 20/XXV
		L. + 2.75 ⊃ + 0.25 cy. ax. 90° = 20/XXV	L. + 2.75 ⊃ + 0.25 cy. ax. 90° = 20/XXV
14	18	R. + 1.25 ⊃ + 0.5 cy. ax. 90° = 20/XX	R. + 1.25 ⊃ + 0.5 cy. ax. 90° = 20/XX
		L. + 1.25 ⊃ + 0.5 cy. ax. 90° = 20/XX	L. + 1.25 ⊃ + 0.5 cy. ax. 90° = 20/XX
15	18	R. + 4.5 cy. ax. 105° = 20/LXX	R. + 4.5 cy. ax. 105° = 20/LXX —
		L. — 0.5 ⊃ + 4.5 cy. ax. 75° = 20/CL	L. — 0.5 ⊃ + 5 cy. ax. 75° = 20/CL

No.	Age.	Correction under Homatropin.	Correction under second Mydriatic.
16	20	R. — 1.25 ⊃ + 3.75 cy. ax. 95° = $\frac{20}{XX}$ —	R. — 1.25 ⊃ + 3.75 cy. ax. 95° = $\frac{20}{XX}$ —
		L. — 1.25 ⊃ + 4. cy. ax. 90° = $\frac{20}{XX}$	L. — 1.25 ⊃ + 4. cy. ax. 90° = $\frac{20}{XX}$
17	20	R. + 1 sph. = $\frac{20}{XV}$	R. + 0.75 sph. = $\frac{20}{XV}$
		L. + 0.75 sph. = $\frac{20}{XV}$	L. + 0.75 sph. = $\frac{20}{XV}$
18	21	R. — 0.5 ⊃ + 6. cy. ax. 88° = $\frac{20}{XXX}$ —	R. — 0.5 ⊃ + 6. cy. ax. 88° = $\frac{20}{XXX}$ —
		L. — 2.5 ⊃ + 5.5 cy. ax. 95° = $\frac{20}{XX}$ —	L. — 2.5 ⊃ + 5.5 cy. ax. 95° = $\frac{20}{XX}$ —
19	22	R. + 1.5 ⊃ + 0.5 cy. ax. 75° = $\frac{20}{XX}$ —	R. + 1.5 ⊃ + 0.25 cy. ax. 75° = $\frac{20}{XXX}$ —
		L. + 1.5 ⊃ + 0.5 cy. ax. 115° = $\frac{20}{XX}$ —	L. + 1.5 ⊃ + 0.25 cy. ax. 115° = $\frac{20}{XXX}$ —
20	23	R. + 6 sph. = $\frac{20}{XX}$	R. + 6 sph. = $\frac{20}{XX}$
		L. + 5.5 ⊃ + 0.5 cy. ax. 90° = $\frac{20}{XXX}$	L. + 5.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$ —
21	24	R. + 1 sph. = $\frac{20}{XX}$ —	R. + 0.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XXX}$
		L. + 1.25 sph. = $\frac{20}{XX}$ —	L. + 1.25 sph. = $\frac{20}{XX}$ —
22	24	R. + 1.25 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$ —	R. + 1.25 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$
		L. + 1.25 ⊃ + 0.25 cy. ax. 105° = $\frac{20}{XX}$	L. + 1.25 ⊃ + 0.25 cy. ax. 105° = $\frac{20}{XX}$
23	26	R. + 0.75 ⊃ + 0.5 cy. ax. 90° = $\frac{20}{XV}$	R. + 0.75 ⊃ + 0.5 cy. ax. 90° = $\frac{20}{XV}$
		L. + 0.75 ⊃ + 0.75 cy. ax. 90° = $\frac{20}{XV}$	L. + 0.75 ⊃ + 0.75 cy. ax. 90° = $\frac{20}{XV}$
24	26	R. + 2.25 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XV}$ —	R. + 2.25 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XV}$ —
		L. + 2 ⊃ + 0.25 cy. ax. 180° = $\frac{20}{XV}$ —	L + 2.25 ⊃ + 0.25 cy. ax. 180° = $\frac{20}{XV}$ —
25	28	R. + 0.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$	R. + 0.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$
		L. + 0.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$	L. + 0.75 ⊃ + 0.25 cy. ax. 90° = $\frac{20}{XX}$
26	29	R. + 1.25 sph. = $\frac{20}{XX}$ —	R. + 1.5 sph. = $\frac{20}{XX}$
		L. + 1.5 sph. = $\frac{20}{XX}$	L. + 1.5 sph. = $\frac{20}{XX}$

Third, *is there no tendency to increased refractive power (lower H., higher M.) after prolonged subjective tests in a good light?* The first I employed in the earlier cases, but have found not entirely satisfactory, because I could not get fine print of the right size and clearness. And there is also the objection that letters seen at a variable distance should be of a variable size. The others have been used in all cases, the third being regarded as most conclusive. I cannot claim that, in all cases in which I have used homatropin I had absolute paralysis of accommodation. All I claim is that a two per cent., or stronger, solution, used in the way proper to it, paralyzes the accommodation just as certainly and thoroughly as a one per cent. solution of atropin or a one-half per cent. solution of duboisin used in the most effective manner. The relative value of homatropin is well shown by the accompanying table. This includes, first, all those cases occurring in private practice, where, after using homatropin and getting a certain result, I so far distrusted the result as to follow with some other mydriatic of better established reputation. Second, some cases from the service of Dr. George C. Harlan, at the Pennsylvania Hospital, in which homatropin was employed for the purpose of testing its relative value. These latter cases were picked in so far as to exclude all too ignorant to allow of satisfactory subjective testing, or whose vision could not be brought to the normal standard by the correction of the ametropia.

Those of the first class often failed to get normal vision with their correcting glasses, such failure being usually associated with high degrees of ametropia. The second column gives the ages of the patients; the third, the correcting lenses selected under homatropin and the vision obtained with them; the fourth, the correcting lenses selected under the other mydriatic and the vision obtained with them.

In all these cases the use of the second mydriatic was begun while the eye was yet under the influence of homatropin, and was continued for from one to seven days before the state of refraction was again tested. In the cases numbered 1, 3, 4, 6, 13, 20, and 24, the second mydriatic was atropin. In cases 2, 11, 13, and 17, it was daturin. In cases 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, and 26, it was duboisin. Case 13 was subjected successively to homatropin, daturin, duboisin, and atropin. The homatropin was always instilled by myself, the second mydriatic commonly used at the patient's home.

Extended analysis of the table is unnecessary; it need only be remarked that in but fifteen out of the fifty-two eyes was there any difference between the first and second results. In eight of these it was one-quarter dioptric in favor of the second mydriatic, in five it was one-quarter dioptric in favor of homatropin, in one it was (in one meridian) one-half dioptric in favor of homatropin, and in another the same in favor of duboisin. In no case was the variation greater than may well be allowed for unavoidable inaccuracy of observation. In no case was the apparent axis of the astigmatism materially changed. When it is borne in mind that the majority of these cases were subjected to the second mydriatic because I was, more than in most cases, inclined to distrust the completeness of the paralysis produced by homatropin, the thorough reliability of homatropin (properly used) as an aid in the diagnosis of ametropia, seems to me incontestable.

Certainly cases such as the above constitute testimony more competent than may be drawn from those in which considerable time has elapsed after the use of the one mydriatic before the second is resorted to. For well-tested cases have convinced me that the state of refraction may change considerably even in a few months, not only toward increased M. and diminished H. but also in the opposite direction. As such cases have already been recorded by others, none need be introduced here.

THE GENERAL ACTION OF HOMATROPIN.

Solutions of homatropin of ordinary strength produce little if any more unpleasant sensation when applied to the conjunctiva than does distilled water. Five and ten per cent. solutions, especially the latter, cause a notable smarting. This has not, however, in any case lasted as much as five minutes. On other mucous membranes no such sensation is produced. I have never had an opportunity of seeing a conjunctivitis induced or aggravated by the use of any mydriatic. Most writers on this subject mention the occurrence of "conjunctival irritation" after the use of homatropin. The phenomenon referred to very generally attends the instillation of the drug; but I certainly cannot regard it as a conjunctival irritation. It is something entirely different from what occurs after an irritant is applied to the conjunctiva.

When sulphate of copper, mitigated nitrate of silver, or solution of nitrate of silver or sulphate of zinc, of the strengths ordinarily used in ophthalmic practice, glycerole of tannin, boroglyceride, or any decidedly acid solution, is applied to the normal conjunctiva, there is, instantly, a decided sense of smarting, and very quickly marked enlargement of the conjunctival vessels, the smarting and hyperæmia being rather proportioned the one to the other. As the smarting subsides, the hyperæmia subsides; and when all abnormal sensation has disappeared the conjunctival vessels will have returned to pretty nearly their original condition. In contrast with this, let us consider what occurs after the instillation of homatropin. Generally, after the use of a solution as strong as one per cent., nearly always after the cumulative use of a two per cent. solution, and invariably, so far as I have observed, after introducing the ten per cent. solution this occurs: The smarting, if it amounts to that, caused by the instillation, quickly subsides, the appearance of the conjunctiva remaining normal; but after three, five, or ten minutes the normal whiteness of the sclerotic is interrupted by an increased vascularity. This becomes more and more marked, reaches its height about the time the pupil has fairly begun to dilate, remains for a little while stationary, then gradually subsides; so that by the time the mydriatic effect of the drug has reached or just passed the maximum, unless the instillations have been continued, the appearance of the sclerotic has again become normal. This process is entirely unattended by smarting, or any other sensation to be connected with it. The vessels of the palpebral conjunctiva are not noticeably involved. Those of the ocular conjunctiva are somewhat dilated, but the *reddening of the eye is mainly due to the enlargement of the minute vessels that form a rosy zone around the cornea, the straight vessels, and the deeper vessels of the sclerotic.* This hyperæmia is not due to the distilled water which has been used to convey the homatropin to the tissues; for distilled water alone does not produce the least hyperæmia in the normal eye. It is not due to acidity of the solution, for the hyperæmia from that cause is entirely different both in time of appearance and in the non-involvement of the deeper vessels. Moreover, the very slight acidity of the preparations I have used was never sufficient to cause hyperæmia, well-prepared litmus paper being a much more delicate test for acids than increased vascularity of the conjunctiva. I believe this hyperæmia to be due to a specific influence of the drug on those vessels through which, in comparatively concentrated solution, it makes its way to the general circulation.

This effect is not, however, peculiar to homatropin, the same thing occurs after instillations of atropin, duboisin, and daturin, and doubtless, though this I have not tested, after hyoscyamin. That it

should not have been observed with reference to these latter, is to be accounted for by the fact that two per cent. solutions of them, or solutions approaching that strength, are not often used in normal eyes. It is not necessary to comment here upon the influence these observations may have upon theories of the action of mydriatics in ocular inflammations.

Placed on the tongue, homatropin causes a decided bitter taste, which, with strong solutions, lasts for some ten minutes or longer. This taste is very generally noticed by the patient when the drug is at all freely applied in the conjunctival sac. It is then doubtless caused by the portion which makes its way through the lachrymal passages to the mouth. That homatropin produces no dryness or irritation of the mouth or throat, is confirmed by my experience. Very often the direct question was asked, Was any sensation of the kind experienced? In every case but one it was answered negatively. In the exceptional case the patient had previously used atropin, and hastened to say that it was entirely different from the sensations produced by that drug, and of his own accord offered the supposition that the feeling he had experienced was probably not due to the homatropin, but to other causes.

The *local effects produced by the hypodermatic injection of homatropin* are of especial interest when considered in connection with the hyperæmia it produces in the eye. For purposes of comparison, it may be well to bear in mind that the hypodermatic injection of distilled water causes slight smarting in the tract of the wound, and if the injection is large and rapidly thrown in, there may be a sharp pain felt at the point of puncture; which disappears, as pressure is removed from the piston, to return when the fluid is again urged forward, but ceases finally within a minute or two after the completion of the injection. Dependent on the situation and size of the injection, there may be some aching in the part. This lasts but a few minutes. There may also be some numbness, which, in one case, the injection being some twenty minims and placed near the course of the ulnar nerve, extended from the elbow to the tips of the little and ring fingers. But these symptoms all disappear within an hour, leaving only a minute red point to mark the seat of injection; and this, too, has usually disappeared two or three days later. The local effects of a solution of homatropin applied in the same way, are best shown by the following account transcribed from the record of an experiment:

EXPERIMENT.—Subject, male, aged twenty-nine. Five minims of a two and one-half per cent. solution, equal to one-eighth grain of the drug, were thrown into the subcutaneous cellular tissue on the outer aspect of the forearm at its upper third. The discomfort was not greater than that produced by distilled water.

15 minutes. There is a distinct elevation of the surface several millimetres in diameter like a wheal, with a pale centre and reddened margins.

25 minutes. This wheal is getting redder in the centre and its red margin is extending outward. It is becoming less elevated.

40 minutes. There is now a reddened area about forty millimetres in diameter. There has been no noticeable impairment or exaltation of sensibility to touch, pain, or heat and cold in this area.

60 minutes. The local redness is fading markedly.

90 minutes. The local redness has almost entirely disappeared: being confined to the immediate neighborhood of the puncture and shading imperceptibly away into the normal color of the skin around it.

10 hours (the next morning). The point of injection is now surrounded by a distinct pink areola some fifty millimetres in diameter, quite tender to the touch.

14 hours. The areola is very distinct, quite red with a sharply marked edge (to the coloring, there is no appreciable swelling), very tender but not altered in size.

36 hours. Areola fading, though still distinct and sore to touch.

Third day. Areola much the same. There is distinct swelling about the point of puncture.

Fourth day. Areola fainter but still perceptibly pink and tender. Its margin not so well defined.

Fifth day. Areola about gone. There is now a distinct, increasing, conoidal, indurated swelling about the seat of puncture, reddened at the apex and sore on pressure.

Sixteenth day. This swelling is now some thirty millimetres in diameter, quite sore and softening at the centre.

Thirty-seventh day. The swelling has somewhat subsided; the softened portion is some twenty millimetres in diameter, covered with purple insensitive skin and surrounded by a narrow ring of induration.

Repetitions of this experiment resulted in essentially the same train of symptoms. The protuberance arising a few minutes after the injection was irregularly flat with abrupt edges, differing entirely from the rounded swelling produced by the subcutaneous injection of fluid; and much wider than the minute elevation that commonly arises at the point of puncture. It was always comparatively pale, sometimes appearing absolutely bloodless; but with a hyperæmic margin which encroached upon it after a little time, and presently swallowed it up. In its turn this primary redness disappeared except at the seat of puncture, to be succeeded some hours later by a larger and more lasting area of hyperæmia. But even the secondary hyperæmia seemed to have no connection with the later inflammation and abscess. The primary hyperæmia seems to me strictly comparable with that noticed in the eye. The late swelling and abscess may be accounted for as eliminative of tissue killed, or hopelessly damaged by contact with a concentrated solution of the drug. That it was not due to accidental contamination of the syringe or fluid injected, is indicated by the facts that the syringe was washed out with boiling water, and the solution boiled immediately before the injection; and that distilled water injected through the same needle with the same syringe, into the same arm, at the same time, failed to produce any unusual effects. Abscess was repeatedly produced, it only followed the injection of at least one-tenth of a grain of the drug in strong (two and one-half per cent) solution. Injection of a smaller amount of the drug or the same amount but in more dilute solution failed to cause anything of the kind. The wheal-like elevation about the seat of puncture was always noticed, as was the primary reddening of the neighboring surface, the extent and duration of these symptoms being directly proportioned to

the dose. The secondary hyperæmia and accompanying tenderness are also directly proportioned to the dose, but were not noticed when less than one-hundredth of a grain had been introduced. The soreness to light touch generally outlasted any noticeable discoloration of the skin.

Action upon the Nervous System.—When a two per cent. solution is used so as to get its cumulative effect on both eyes at once, the total amount of the drug placed in the two conjunctival sacs may be as much as one-eighth to one-fourth of a grain. When using the drug in this way I have nearly always made special inquiry for symptoms referable to it, and have almost invariably elicited negative replies. The same absence of subjective symptoms attended the taking of one-eighth or one-sixth of a grain on the empty stomach. In three instances, however, after pretty liberal use of the drug in both eyes, patients spoke of feeling a little "strange" or "intoxicated;" but neither their speech nor movements gave any objective evidence of such a condition, and I was inclined to attach no importance to their statements, opposed as they were to those of a great majority of the persons subjected to such influence, until the following occurrence convinced me that it was not unlikely that such statements were accurate. By a mistake as to the graduation of a hypodermatic syringe, I received fully one-fourth of a grain of homatropin in the subcutaneous tissue of the forearm.

EXPERIMENT.—This occurred at 8.45 P. M., supper had been eaten at 7 P. M., and my pulse was at the time 64 while sitting, and 72 when standing. Power of accommodation = 9 dioptrics, pupils, facing the full light of an argand burner, 3 mm. in diameter.

8.50 no change.

8.55 pulse 60 and stronger.

9.00 pulse 66, a very decided sense of intoxication.

9.03 pupils 4 mm. in diameter, facing the light as before.

9.05 pulse 68.

9.10 the power of accommodation is so impaired that it is impossible to see clearly anything within twelve inches of the eye. Convergence of the visual axes for any point within that distance is also impossible. There is also a sense of difficulty in making any coördinated ocular movements, although no diplopia is noticed. Pupils 4 mm. in diameter.

9.15 pulse 64, fuller than before taking the drug.

9.25 pulse 66, the same sense of intoxication, pupils, and power of accommodation and convergence as at 9.10.

9.35 and 9.45 pulse 66.

9.55 pulse 64, sense of intoxication and difficulty of accommodation and convergence slightly diminished.

10.05 pulse 60, pupils smaller.

10.15 pulse 62. Going out of doors there is some little difficulty in walking, a distinct tendency to drag the toes. Recovery now proceeded rapidly.

11.15 pulse 58, pupils, accommodation, and ocular movements, normal; a very slight headache.

The intoxication much resembled that produced by alcohol. It was peculiar in that there was a sense of great delay in the succession of ideas. There was no feeling of depression, rather of comfort, satisfaction, and indisposition to exertion.

The effects upon the pupil and accommodation were so transient, when compared with the same effects produced by a local application of the drug, and the dilatation of the pupil was so insignificant, as compared with the impairment of accommodation, that I cannot regard them as due to any local action of the drug reaching the eye through the circulation, but rather with the interference with the action of other ocular muscles, as due to the influence of the drug upon special parts of the central nervous system.

By other experiments I have found that the one-eighth of a grain of homatropin taken hypodermatically always causes some little intoxication. Once, when taken fasting, it seemed to cause about as much as the fourth of a grain, above mentioned, except that the influence it exerted over ocular movements was much less.

Case.	Dose.	Age.	Sex.	Normal P. R.	P. R. with H.	Decrease.
1	1/30 gr.	45	F.	90	80	10
2	1/30 "	31	"	82	71	11
3	1/30 "	49	"	82	82	0
4	1/30 "	16	M.	90	78	12
5	1/18 "	30	F.	70	55	15
6	1/18 "	20	"	84	70	14
7	1/18 "	24	"	66	60	6
8	1/18 "	27	"	65	56	9
9	1/15 "	19	"	90	78	12
10	1/15 "	23	"	94	76	18
11	1/15 "	21	"	78	70	8
12	1/15 "	15	"	72	72	0
13	1/15 "	20	"	81	75	6
14	1/15 "	22	"	76	76	0
15	1/12 "	19	M.	82	66	16
16	1/12 "	28	F.	72	64	8
17	1/12 "	14	"	76	76	0
18	1/12 "	16	"	66	63	3
19	1/12 "	20	M.	72	72	0
20	1/12 "	14	F.	96	94	2
21	1/12 "	27	"	90	84	6
22	1/12 "	14	M.	64	57	7
23	1/12 "	19	F.	72	65	7
24	1/12 "	11	M.	76	74	2
25	1/10 "	19	"	82	55	27
26	1/10 "	17	F.	72	58	14
27	1/10 "	29	M.	66	55	11
28	1/8 "	18	F.	85	68	17
29	1/8 "	17	M.	78	68	10
30	1/8 "	18	"	84	66	18
31	1/8 "	31	F.	63	64	—1
32	1/8 "	24	"	77	64	13

Influence upon the Circulation.—Ringer found, with reference to the action of the heart, that "homatropin slows the beats and renders them irregular in force and rhythm." In my experience a decrease in the pulse-rate is the most constant symptom produced. Next to this is an increase in the fulness and force of the radial pulse. In but three out of seventy cases was there any certain disturbance of rhythm. In two of these there was some irregularity of rhythm to start with, which became much more marked after the use of the drug. In the third, irregularity of action was noticed only after the employment of this drug. The increase in the force is noticeable, mainly within thirty to sixty minutes after the application of the homatropin.

Later there is a certain diminution of force, but that the pulsations become weaker than before the drug was taken I think is very uncommon. I could not satisfy myself that it occurred in any case. In one patient with mitral regurgitation, but fair circulation, homatropin seemed to cause a marked improvement in the strength of the pulse, which improvement lasted some hours. The preceding table shows the effect on pulse-rate produced by the use of the drug for its mydriatic effect. In the successive columns are found the estimated amount of the drug employed (by cumulative instillations), the ages, sex, normal pulse-rate under homatropin, and the difference produced by the drug.

The dose is expressed in fractions of a grain, the pulse-rate, of course, by the number of beats per minute. The observations were all made when the subject was in the sitting posture, free from excitement, and when time had elapsed since any considerable exertion. A cursory glance at the table shows that the slowing of the pulse is of pretty constant occurrence; yet it is probably even more constant than the table would indicate. In these cases it was not practicable to watch the pulse constantly, or at frequent intervals throughout the time that the influence of the drug was manifest. The normal pulse-rate was determined before the use of the drug and after recovery, but often the observations on the pulse-rate produced by the drug, were confined to the period at which the mydriatic influence was most complete, the patient being the remainder of the time from under observation. Now upon looking at the account of the experiment in which I received one-fourth of a grain, it well be noticed that the pulse first fell to sixty, then quickly rose to sixty-eight, after an hour fell again, and at two hours it was fifty-eight. A similar fall, rise, and second fall were noted after the use of one-eighth or one-tenth of a grain. Also in patients who had such amounts placed in the conjunctival sac, and who remained under observation until all effects of the drug had passed off. So it is likely, if not certain, that some of the patients referred to above, who seemed to have the pulse-rate but little if at all affected, were seen only during the period of such a secondary rise. It will also appear from the table, and from what has just been said, that the influence upon the pulse-rate is not proportional to the dose. While large doses slow the pulse both early and late, they do not slow it more than a dose so small as not to produce secondary rise. The secondary quickening of the pulse seems to be connected with the intoxication produced by the drug. This was pointed out to me by Dr. Thos. J. Mays, to whom my thanks are due for assistance in testing the action of the drug when applied hypodermatically.

Summary. — Homatropin applied in sufficient quantity by cumulative instillation is a perfectly reliable mydriatic in all cases. Locally, it causes hyperæmia, and affects nutrition, when in concentrated solution, so profoundly as to cause tissue death. In ordinary doses ($\frac{1}{200}$ to $\frac{1}{20}$ of a grain) it slows the pulse, makes it fuller and perhaps irregular in rhythm. In large doses ($\frac{1}{8}$ of a grain and upward) administered hypodermatically it causes intoxication.

The really valuable literature of the subject is comprised in the following papers:

TWEEDY AND RINGER. On the Mydriatic Properties of Homatropia or Oxtoluyltropein, with an account of its General Physiological Action. *Lancet*, 1880, vol. i. p. 795.

H. S. SCHELL. A New Mydriatic. *Philadelphia Medical Times*, October, 1880, pp. 7 and 47.

S. D. RISLEY. The Value of Homatropin Hydrobromate in Ophthalmic Practice. *American Journal of the Medical Sciences*, Jan. 1881, p. 113, and *Trans. American Ophthalmological Society*, Dec. 1881, p. 22.

C. A. OLIVER. The Comparative Action of Hydrobromate of Homatropin, and of Sulphate of Atropia upon the Iris and Ciliary Muscle. *American Journal of the Medical Sciences*, July, 1881, p. 150.

H. SCHAEFER. Comparative Investigations into the Effects of Atropin, Duboisin, and Homatropin. *Archives of Ophthalmology*, Nov. 1881, p. 196.

HOSPITAL NOTES.

NOTES FROM THE VIENNA CLINICS.

(Reported by E. P. DAVIS, M.D.)

CARL BRAUN'S TREATMENT OF PUERPERAL SEPSIS.

PROF. CARL BRAUN has recently adopted a mode of treatment in cases of puerperal sepsis which has generally proved most efficient. As soon as a marked rise in temperature occurs the interior of the uterus is thoroughly curetted and disinfected by an antiseptic fluid, usually thymol. The curettte removes masses of decidua, blood-clots, and often pieces of membrane the presence of which would not be suspected, as the labor may have been normal. To be efficient, the operation must be done thoroughly yet gently, and when so performed the temperature has often fallen several degrees and in a short time become normal, and a normal lying-in period ensued. An iodoform pencil or uterine suppository is often placed in the cervix after the operation, and antiseptic gauze in the vagina to absorb discharges.

ACTINOMYX IN THE PERITONEAL CAVITY.

During the past six weeks the clinic of Prof. Nothnagel has, as usual, presented much of interest.

The actinomyx is well known to American and European surgeons, but it has been, as yet, very rarely observed in the peritoneal cavity.

The case in question was that of a young man who had suffered from a circumscribed peritonitis, which had resulted in a fistula on the right side of the navel. The clear fluid and kernel-like masses which accompany actinomyx were present, and the microscope made the diagnosis easy and plain. The actinomyx had been undoubtedly taken with food, an intestinal obstruction had caused a perityphlitis—at least a circumscribed peritonitis—and a fistula resulted. The fistulous tract was operated on by Prof. Billroth.

ADDISON'S DISEASE.

Two interesting cases of Addison's disease were also presented, and tuberculosis of the suprarenal capsules adduced as the cause.

A SERIES OF CASES OF SPLENIC TUMOR.

A series of cases of splenic tumor were observed, leukynia in varying forms and carcinoma being the

causes of these tumors. There was also a series of cases of hæmatemesis, in which ulcer of the stomach and varices of the œsophagus (in a case of hypertrophic liver cirrhosis) were the pathological conditions present.

THE DIAGNOSIS OF PERNICIOUS OXALURIA.

The diagnosis of pernicious oxaluria was illustrated by a case in which the anchylostonum duodenalis was suspected but not found, as the cause of the disease.

CALOMEL AS A DIURETIC.

The use of calomel as a diuretic, which has already been tried in other clinics, has given, in some cases, interesting results here. It is efficacious only when the kidneys are healthy. In some cases of heart disease, in which as yet no interstitial changes had occurred, calomel produced free diuresis where other means had failed. It was given in rather large doses, and salivation rarely followed. No explanation is given of its mode of action.

MEDICAL PROGRESS.

SUGAR AND CORROSIVE SUBLIMATE AS A FIRST DRESSING IN WAR.—Dr. Heidenreich, in a paper published in the *Vrach* (Nos. 10 and 20), strongly recommends as a first dressing on the field of battle a mixture of corrosive sublimate with powdered sugar in the proportion of 1 to 1000. It is important that when this is prepared the sublimate should be evenly distributed, and this is easily effected by first dissolving the mercurial salt in a little spirit and then carefully rubbing up the sugar with it. The spirit ultimately evaporates and leaves a powdered mass of uniform composition. A little packet is supplied to each soldier containing a capsule in which are five grammes of the mixed powder—*i. e.*, $\frac{1}{200}$ of a gramme of sublimate—for the purpose of sprinkling on the wound; also a good-sized piece of gauze impregnated with one-third per cent. of its own weight of sublimate by means of Bergmann's process, which consists of dipping it in a solution containing 10 parts of sublimate to 500 of glycerine, 1000 of alcohol, and 1500 of water. Some hygroscopic wadding is also supplied, and this, when enclosed between two folds of the gauze, forms a dressing measuring 650 square centimetres, which is large enough to cover a somewhat extensive wound. The whole is enclosed by means of a layer of varnished paper and a triangle bandage, which is fastened with two safety pins. The author claims for this mixture of sugar and sublimate the advantage of being a particularly powerful antiseptic and quite innocuous. Sugar, he says, is the best substance for diluting the sublimate, being itself somewhat antiseptic. This dressing has also the additional advantage of being suitable for use wherever water may be procurable. This, of course, is not always the case, and where it is the source is frequently in a marsh or pool of anything but hygienic appearance. Under these circumstances, he advises that filtration should be resorted to, and consequently proposes that a kind of filter consisting of flannel impregnated with sublimate should be included in the packets supplied to the men. The whole contents of the packet weigh only seventy-five grammes, and are exceedingly portable and inexpensive.

PURE TEREBENE IN WINTER-COUGH.—J. HUTCHISON, M.D., of Shawlands, Glasgow, writes as follows to *The British Medical Journal*, of July 3, 1886: For some months past I have been using pure terebene in the treatment of winter-cough and bronchitis. I have before me notes of fifty-one cases so treated, and the conclusions at which I have arrived from my experience of the drug are as follows:

In cases where the trouble has not been of long standing, and the symptoms are slight cough, more especially at night; expectoration moderate in quantity and easily voided; no feeling of rawness in the chest, and little or no disturbance of the general health, I consider that pure terebene is almost to be ranked as a specific, so quickly is a cure effected.

In cases where there is emphysema, and the ailment has been present for some time, it may be for some years, with the following symptoms: cough very troublesome, and sometimes even violent; expectoration tough and adhesive, or it may be easy and copious; great shortness of breath and rawness of chest; sleep broken, and general health much disturbed, the beneficial effects of the medicine do not manifest themselves for some little time, and not unfrequently the dose has to be increased to ten, or even fifteen, drops. If, however, the drug be persevered with faithfully and regularly, the cases are few in which I have to record a failure. Altogether, I consider pure terebene one of the most valuable remedies at our command in the above class of cases.

In six cases of phthisis in which I prescribed the drug, the patients, in every instance but one, remarked that they were not in any way benefited, and requested the medicine to be changed. In catarrh, also, the results were not satisfactory.

My method of prescribing the drug was sometimes pure terebene alone—ten drops on sugar three times a day. In other cases I combined it with cod-liver oil, as follows: pure terebene, two drachms; cod-liver oil, to four ounces; two drachms three times daily. I cannot say, however, that the effects produced were any better in the one case than the other. If there were any difference, pure terebene alone had the preference.

Some of the patients complained that the medicine made them sick; others that their appetite was improved by it. In a few of the cases it appeared to have a laxative effect. In a very large proportion drowsiness was complained of; while in some giddiness, or even a slight transient intoxication, was observed.

TESTS FOR ALBUMEN IN URINE.—The "Albumen Test Committee" recently presented to the Clinical Society of London a paper on the work accomplished by them, which, according to custom, was received without discussion. In it, the Committee briefly reviewed the various modes of testing for urinary albumen, etc., in common use, and compared in turn Dr. Oliver's test-papers, Dr. Johnson's picric acid method, the potassio-mercuric iodide and acid, Dr. Pavy's pellets, the acid brine method, picric acid and brine, the acetic acid, and the nitric acid methods. After careful consideration and experiment, the Committee arrived at the conclusion that the papers of Dr. Oliver possessed advantages in the way of portability and delicacy of reaction over the other similar preparations; but,

apart from the question of easy carriage and compactness, they described nitric acid as being most reliable and delicate. All the methods, however, were said to be respectively useful for the determination of different proteids in the urine.

TONSILLAR ORCHITIS AND OVARITIS.—In an elaborate study, thus entitled, in the *Archives Générales de Médecine*, for May and June, 1886, M. JOAL presents the following conclusions:

1. Orchitis and ovaritis should be classed among the complications of acute tonsillitis, either superficial or deep.

2. These genital manifestations, analogous to those which appear in typhoid fever and in *fievre ourleuse*, should be attributed to the infectious nature of the tonsillar inflammation.

3. The orchitis and ovaritis are not due to any of the alleged physiological nexuses, imagined by certain observers as existing between the generative organs and the tonsils.

HEMIRHEUMATISM.—At a recent meeting of the Academy of Medicine of Paris there was presented, for DR. CAZALIS, a note on the hemilateral predominance of the manifestations of chronic rheumatism. According to the author, a tendency to unilateral rheumatism is noted in two-thirds of such cases, the right side being most frequently affected. When pulmonary congestions, or bronchitis of arthritic nature appear in these patients, they are most often located on the side on which the rheumatism predominates. On this side, also, are most frequently found deviation and deformity of the great toe. If hemicrania be added to the various modalities of arthritism, there will be found still greater ground for admitting that the central system exerts a great influence in the localization of chronic manifestations.—*Archives Générales de Médecine*, June, 1886.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.—In two consecutive numbers of the *Eira*, DR. A. P. SILVERSKIÖLD gives an interesting account of his observations on fifty-eight cases of cerebro-spinal meningitis during the Gothenburg epidemic of 1883. He adds a table of the relative frequency of these epidemics in different countries, which shows that Switzerland has had the greatest number, namely, fifty-eight; North America, sixteen; Sweden, seven; England and Italy, five each; Denmark, four; Spain and the Netherlands, only one each. The disease appears to rage during the winter and spring months. The Gothenburg epidemic commenced in January, reached its maximum in February and March, its minimum being in May and June. The disease commenced with a severe rigor, lasting from half an hour to six hours, followed by intense heat and headache. The rigors recurred at irregular intervals, and did not resemble those of pure ague. Unconsciousness and delirium usually set in quickly, in some cases coma, not always terminating fatally, even when the patient was perfectly livid. The temperature was not raised to any very abnormal extent, and some cases ended fatally with a temperature of only 40° C. (104° F.). All sorts of nervous symptoms were met with as complications, the prominent features being intense headache and pain in the back, shivering, convulsions, and delirium. Sometimes hydrocephalus occurred. During convalescence there were great changes in temperature which sometimes rose to 40° C., and sometimes fell to normal. Difficulty of swallowing and great distaste to food lasted during the whole period. The pulse was as irregular as the temperature; in most cases there was a slight increase in frequency. Dr. Silverskiöld tried a large number of drugs, without any satisfactory result. Salicine and quinine had scarcely any effect. Cold on the head and along the spine lessened the pain, but the most serviceable means were local bleeding and opiates. He found large doses of morphine most efficient in giving sleep when there were delirium and convulsions. Chloral was less frequently used, and opium was wholly avoided. When the most serious symptoms had abated, Dr. Silverskiöld used bromide of potassium to promote reabsorption. He is of opinion that the disease arises from malaria, and states at some length the ground for his belief, founded on observation of the physical features of the districts around Gothenburg, which are low and marshy. During an east wind these marshes are exposed, and exhale malarial vapors. In 1883, this was especially the case.—*Brit. Med. Journ.*, July 3, 1886.

CHEMICAL CONSTITUTION AND PHYSIOLOGICAL ACTION OF DRUGS.—At a recent meeting of the Cambridge Physiological Society DR. J. BLAKE made some remarks on the discordant results that had been arrived at by different observers in investigating the connection between chemical constitution and physiological action. Brunton and Cash, in a paper published in the last volume of the *Trans. of the R. S.*, had concluded that no such connection could be shown; whilst Richet, Ringer, and Bothrin had arrived at the conclusion that such a connection existed when the chemical constitution of the elements was considered in relation to Mendelejeff's law. He (Dr. Blake) had published forty-five years ago, in a paper read before the Royal Society, what he considered was the relation between chemical constitution and physiological action, viz., that substances in the same isomorphous group exert analogous physiological action when introduced directly into the veins or arteries, and a larger number of experiments made with compounds of more than forty of the elements, had, he believed, fully established the truth of the connection of physiological action with isomorphism. The experiments which were performed by Brunton and Cash were not calculated to throw any light on the subject, as the reagents they employed were principally substances of the chemical constitution of which little is known, and the method they used, that of subcutaneous injection, introduces so many unknown factors that the results are comparatively worthless. By employing the same method Richet considered not only that he had proved the connection between physiological action and chemical constitution, but that he could even calculate a *toxicological constant* as a function of the atomic weight. Both in these experiments of Richet and in those of Bothrin their authors have been led into error by mistaking the arrest of the circulation caused by obstruction in the pulmonary arteries, as is the case with the salts of lithium, rubidium, and cæsium, with that caused by the paralysis of the heart that follows the injection of the salts of potash into the veins.

In answer to a question, Dr. Blake observed that isomorphism, although founded principally on the form

assumed by the crystalline compounds of an element, yet connoted a great deal more than mere resemblance in crystalline form, isomorphous elements resembling each other in many of their more marked chemical functions.—*The Journal of Physiology*, June, 1886.

PULMONARY RESECTION AND NEPHRECTOMY.—At a recent meeting of the *Société de Chirurgie*, M. DEMONS, of Bordeaux, narrated the case of an individual in whom a stab wound in the inferior portion of the thorax had determined a pulmonary hernia and a wound of the kidney. The protruding portion of the lung was resected, but several days later a fluid, shown by chemical analysis to be urine, was observed to pass out from the uncicatrized wound. In view of this urinary fistula, M. Demons performed nephrectomy, resulting in perfect cure.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, June 11, 1866.

APHASIA AFTER INJURY TO THE HEAD, THE FACULTY OF COUNTING BEING RETAINED.—DR. VOLLAND, Davos-Dörfli (*Münchener medicinische Wochenschrift*, January 26, 1886) records the following case: A youth, aged fifteen, suffered a fall down a staircase into a cellar, where he was found in a state of insensibility. The actual height that he had fallen was not known, as no one else was present at the time of the accident. A moderately sized and sharp punctured wound was found on the right parietal bone, near the surface; the periosteum was detached to the extent of a line. The bone itself appeared uninjured, and no bleeding from the nose or ears occurred. The injury was treated as an open wound. The patient continued insensible the whole of the following day, and could not be made to take food. On the 16th he took nourishment and came to himself. No paralysis of extremities or of the face was present, but his friends stated that, although he understood what was said to him, he could make no reply. The only word he could utter was *Anna*, slowly articulated, in reply to his friends, and especially when he saw any object that pleased him; it was out of his power, by any effort, to get out any other word. The trial of writing was made, but it was exactly the same as with his speaking: the word *Anna* was illegibly scribbled. On the following day it was said that the patient could count, and at my request he, without hesitation, counted to 100. Furthermore, he could write down and count correctly any sum that he had previously learnt. For fourteen days that he lay ill, the difficulty of speech remained. As he recovered and the wound healed, he concurrently and gradually recovered speech and facility of writing. Six years afterward, when he had attained the age for military service, he still experienced difficulty of speech, and was subject to vertigo; had a sense of pressure on his head distinct from headache, and was the subject of ptosis. He was able, however, to follow his work as an agricultural laborer. The point of interest in this case, Dr. Volland observes, is that it seems to point to a centre for counting and expression of figures.—*Provincial Medical Journal*, July 1, 1886.

TREATMENT OF STAMMERING.—In the *Bulletin de l'Academie Royale de Medicine de Belgique* for January, 1886, DR. CHERVIN, of Paris, has an interesting article on the etiology and treatment of stammering. His treatment lasts only three weeks.

The *first week* is devoted to the study of the elements of speech, and to the methodic exercise of respiration, The respiratory rhythm must be established at the outset, and the patient must be taught to breathe and utilize his breath with a view to speaking. There are certain exercises of respiration, in which he teaches the subject how to inspire and how to expire, these acts being preceded by a moment of repose, during which the mouth is kept closed. Expiration is at first utilized in pronouncing the separate sounds, then combined sounds. The vowels are first chosen in the exercises, as they are easier to pronounce than the consonants. These latter are taken up and each carefully studied. When the elements of speech have been perfectly studied, and the difficulties arising in connection with individual consonants have been overcome by special gymnastic exercises, the subject passes to the study of syllables, then words, and, finally, sentences and paragraphs. During the first week the stammerer should abruptly break with his old manner of speaking. Dr. Chervin considers as a powerful aid in this work complete, absolute silence, which he imposes upon his patients during the first week. It is evident that as long as the principles of the method are not sufficiently known to the pupil, and he is not completely broken into their practice, he will not apply them in conversation. This rigorous silence has another effect. It quiets the pupil's mind, and makes him forget all about his stammering.

The *second week* the pupil regains freedom to speak. The time has arrived for him to apply the principles he has learned. Henceforward he can speak, because he no longer stammers; he restrains himself, and slowly puts into practice the instructions concerning respiration, the regular movements of the tongue and lips, etc.

It is always a surprise to Chervin to see the contortions, the spasms, the hesitations, the most marked repetitions, disappear under this method as if by enchantment. A clear, precise utterance succeeds the former stuttering; speaking will become natural, agreeable and harmonious, when the extreme methodic slowness imposed during the second week will have given way to an easier gait which is to be practised during the last week of the treatment.

The *third week* is employed in fixing the new habit of speaking with care and method, and in relieving the delivery of all tendency to choking. At the same time a careful study is made of the inflections of the voice.

In fine, Chervin replaces the very marked syllabation of the first days by a steady but slightly accentuated delivery, in which all the syllables are pronounced without precipitation, and, above all, without jerking.

During this last week, Chervin counsels his pupils to imitate persons who speak well; whose delivery, without being of pedantic slowness, is calm and deliberate; in whose voice the inflections are natural and varied; whose sentences, well modelled, both as to breathing and meaning, are easy to understand and pleasant to hear.

But at the expiration of the three weeks it must not be supposed that the pupil is entirely cured; he is like a convalescent, who has still need of care and precautions in order to achieve a complete restoration. Special instructions must be given to him, whereby he may be able to continue the application of the method, and thus indelibly fix the habit of speaking properly.—*New Orleans Medical and Surgical Journal*, July, 1886.

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THE TREATMENT OF DIVIDED TENDONS.

FOR the treatment of tendons ruptured subcutaneously, the majority of the text-books on surgery recommend simple attempts at approximation of the separated ends by position, and, in the case of an open wound, suturing the separated ends. The former method has been very often adopted, with moderate success, and the latter has been used often enough, and successfully enough, to make it a well-established plan of procedure. In 1882, however, HEUCK reported, in the *Centralblatt für Chirurgie*, a plan adopted with success by Czerny, which may be regarded as an improvement upon the methods just mentioned. In this case, Czerny, finding it impossible to bring together the ends of a subcutaneously ruptured extensor of the thumb, two weeks after the accident, did a sort of flap operation, which resulted in restoration of the power of extension of the thumb. Whether this was effected by direct union of the divided ends of the tendon, or by means of their union to the cicatrix in the skin, it is not easy to say.

Still another method of overcoming the difficulty presented by wide separation of the ends of a divided or ruptured tendon is what the French have called "union by anastomosis." This consists in grafting the peripheral end of the injured tendon to the continuity of a neighboring sound tendon. The operation has been done only a few times; but it has proved so successful as to merit attention. The first account of its performance is somewhat apocryphal. Velpeau is said by Tillaux to have mentioned two such operations done by Missa and Champion. The earliest authentic case is said by Denonvilliers, in the *Bull. et Mém. de l'Acad. de Chirurgie*, for 1875, to have been done in 1873, by Polaillon, who sutured the peripheral ends of the divided extensor tendons of the three middle fingers to the corresponding tendons of the thumb and little finger. In 1875, Tillaux reported to the Academie de Chirurgie a successful operation, done in 1874, in which, two months after the division by laceration of the extensor tendons of the little and ring fingers, he cut down upon them and sutured their peripheral ends to the extensor tendon of the middle finger. In 1876, Duplay reported to the same society a case in which he had successfully united the subcutaneously ruptured tendon of the long extensor of the thumb to the tendon of the extensor carpi radialis longior, by inserting the peripheral end of the former into a buttonhole made in the latter, and fixing it there with a single wire suture. At the same time, Tillaux reported that he had just done an exactly similar operation.

The most recent writer on this subject is HAGER, who, in the *Berliner klin. Wochenschrift*, for May 31, 1886, describes an operation for the relief of what he calls, after Volkmann, a spontaneous rupture of the tendon of the long extensor of the thumb. The operation was done in 1885, and consisted in cutting down upon the tendon seventeen days after the rupture occurred, and attempting to find the divided ends. Failing to discover the upper end, because of its retraction, he cut the lower end off obliquely, and sutured it with catgut to the tendon of the extensor indicis, after having opened the sheath of the latter and freshened a suitable surface by scraping off the epithelium. Under antiseptic treatment the wound healed by first intention, and in two months the power of extending the thumb was almost restored, while in six months the movements of the hand were nearly normal, the thumb moving freely even when the fingers were flexed into the palm so as to make a fist.

This admirable result confirms the previous experiences which we have mentioned, and encourages the hope that in this method we have a means of repairing an otherwise hopeless injury.

THE USE OF THE STOMACH PUMP IN INTESTINAL OBSTRUCTION.

A RECENT paper by CAHN, in the *Berliner klinische Wochenschrift*, for May 31, 1886, gives an interesting account of a case in which a large sarcoma of the retroperitoneal glands produced symptoms which might easily have been judged to be those of cancerous stricture of the pylorus. In fact, the diagnosis of carcinoma was made, but the position of the tumor was believed to be below the pyloric orifice and beyond the opening of the common bile-duct into the duodenum. The correctness of this opinion as to its location was demonstrated at the autopsy,

and it is of peculiar interest to note the fact upon which the opinion was based during life, viz., that when the stomach was washed out by means of the tube, large quantities of bile were evacuated, either pure, after the contents of the stomach were removed, or mixed with intestinal contents.

Leichtenstern has called attention to the significance of the persistent admixture of bile with the vomited material in cases of suspected stenosis of the pyloric orifice, but in the case reported by Cahn there was no bilious vomiting, it was only after the stomach had been cleared of its contents by the tube that bile was able to enter it at all, and then it was removed by the tube. Cahn explains the absence of bile in the stomach before the use of the tube by the fact that the presence of undigested material in the stomach acts as an irritant and causes unremitting vermicular movements, with more or less tonic contraction of the circular fibres at the pyloric extremity, and that washing out the stomach reduces the intragastric pressure, and removes the cause of the spasm which prevented the passage of bile or other contents of the duodenum into the stomach. Cahn's observations suggested to him that washing out the stomach may prove useful not only in locating the seat of an obstruction in the digestive tract, but also in furnishing relief for some of the distress to which such an obstruction may give.

A practical application of these principles was observed by KUSSMAUL in a case of intestinal obstruction treated by washing out the stomach. This operation relieved the patient of large quantities of fecal matter which had found their way into the stomach, and this relief seems to have led to some change in the state of excitation of the muscular coat of the bowel, so that enemata, which had been unsuccessfully used before, now brought away masses of feces, and the patient recovered. In this case, it is proper to remark, the symptoms reported indicate that the condition was probably due to enteritis and not to intussusception.

Cahn also records two cases, occurring in the practice of Lücke, in which the symptoms of ileus followed the operation of gastroenterostomy, and were relieved by washing out the stomach; and he points out the advantage of this simple means of overcoming a dangerous complication of this operation.

The opinions of Cahn, as to the service which washing out the stomach may render, are deserving of careful consideration and their application to practice may develop important results in regard to the diagnosis and treatment of obstructions in the digestive tract.

AORTIC ANEURISM TREATED BY WIRE AND GALVANISM.

IN THE MEDICAL NEWS for December 12, 1885, and March 27, 1886, we made some remarks upon the treatment of aneurisms of the aorta by the introduction of filiform materials. We cited a case operated upon by Loreta, in 1884, which must be considered as a success so far as the consolidation and diminution of the tumor are concerned, and another treated by Cayley, Hulke, and Gould, in 1885, in which the result was at least temporarily successful. And now BARWELL reports in the *Lancet* for June 5, 1886, a case of aneurism of the arch of the aorta involving its lower aspect, in which he ingeniously combined the introduction of filiform material and the application of galvanism. He introduced, through an ivory stylet, ten feet of the finest steel wire, which had previously been coiled on a wooden cylinder half an inch in diameter. The end of the wire was connected with the positive pole of a battery. The negative pole was applied to the upper dorsal region of the patient, with a piece of amadou about a foot square, thoroughly saturated with hot water, between the electrode and the skin. By means of a galvanometer the strength of the current was measured, and found to be not more than four milliampères. This was then brought up to nine or ten milliampères, and passed continuously through the circuit for an hour and ten minutes. At the end of twelve hours the pulsation in the tumor seemed to be more distant, and the tumor much harder. Signs of bronchial obstruction, which had been very distressing before, were lessened. On the fourth day after the operation a new tumor was found on the other side of the sternum, and four days later the patient died from rupture of the second sac, two and a half pounds of blood being found in the right pleural cavity at the autopsy. The main aneurismal sac contained large wide coils of wire, each of which was surrounded by a "pretty thick" coat of firm, colorless fibrin, strongly adherent to it, and wherever the metal was in contact with, or within a moderate distance of the wall, the wire was bound to the sac.

In studying this case we must admire the ingenuity of the operator, and share his opinion that there appears to be a decided theoretical advantage in attempting to cure aneurism by combining the coagulating power of electricity with that of foreign substances introduced into the blood current. We think, however, that the appearances we have cited, as found in the sac of the aneurism at the autopsy, do not indicate that the use of galvanism in conjunction with the introduction of fine wire is, in any sense, to be preferred to the use of filiform material alone, although the experiment is deserving of further trial. We would, however, suggest that the quantity of wire introduced into the aneurismal sac in this case was too small. Mr. Hulke introduced forty feet of wire in his case, and Mr. Gould afterward introduced nearly thirty-five feet of wire in the same case.

EXERCISE AND OVER-EXERCISE.

IN the river at New London, lately, occurred a series of boat races between representatives of four universities. The sympathetic and more or less excited audience saw numerous perspiring youths tugging manfully at the oar, and heard loud college cheers echoed along either shore, and those of its members who were not too old or too *blasé* felt something of the enthusiasm which urged on the long, narrow "shells" toward the finish. Men who had once held an oar, renewed, for a moment, in that struggle, similar contests of bygone days, when they had helped to pull their "'varsity" to the fore. But who, of all the spectators, old or young, appreciated what this contest meant to the participants? The on-looker perceived the heat of a day in June. He beheld a pleasant river, whose green banks were dotted with varying bits and splashes of color. He saw a wild, rushing "burst of speed," and heard ringing cheers growing louder as the boats flashed up to the goal. To each member of the crews, however, those few moments of that summer afternoon were the climax of months of hard, steady work. Their training for that race meant long weeks of self-control, and it meant steady, systematic, mechanical exertion continued day after day; yet all this time their college duties must not be neglected. Then comes the race! "How easily they row! It does not seem like work," one hears from a looker-on. But they *are* working. Each man in the boats has forgotten, for the time, that he is an anatomical collection. He has forgotten that within him is a heart and lungs. He thinks not of the proper balance between cell degeneration and cell growth. He has become a human will, which is to prove itself a hard taskmaster over its servant members.

Woe to any one of them if his strength be not sufficient. What if the heart, first hypertrophied and then strained, by hard exercise, is just on the border of dilatation? The brave will drives on in spite of the pumping, spasmodic, irregularly bounding organ, until the finish line be passed and the man, perhaps, falls unconscious over the handle of the oar which he has so bravely grasped. Will Da Costa's "irritable heart" account for his symptoms of the following month, or are they the beginnings of more serious trouble? There is the same forgetfulness of self in all athletic contests, a firm demand for more power than the body can supply. Hence it becomes extremely important to select only picked men, to watch daily the effects of judicious training upon them, to drop out every case in which signs of weakness are indicated, and, at last, to find the few "elect" who can bear the burden and heat of the day.

Are college crews or other contestants thus selected? In a few instances there are judicious and competent men in charge of their physical training. In many cases this is left to a professional oarsman or general athlete, assisted by a committee of the college students or of the club. They pick out the most "likely" men available. Occasionally these are examined as to chest condition—more frequently they are not. Even when examined, there is seldom any careful inspection of the effects which daily exercise is producing upon these candidates for athletic honors. It is by such oversight that the men slip into crews who "pull their hearts out in the race," and who break down, even years afterward, from any light exertion.

Athletic contests are to be encouraged. They cultivate all the manly qualities, and tend to produce a sound mind as well as a sound body. To attain this worthy result, however, there is need for intelligent medical direction, and without this there is every probability that they may prove most baneful both in their immediate and remote consequences.

REVIEWS.

THE SURGICAL DISEASES OF CHILDREN. By EDMUND OWEN, M.B., F.R.C.S., Surgeon to the Hospital for Sick Children, Great Ormond Street, London. 12mo. pp. 585, with 4 chromo-lithographic plates and 85 engravings. Philadelphia: Lea Brothers & Co., 1886.

THIS is an admirable treatise, well suited to form one in a series of handy manuals for ready reference. The arrangement is all that can be desired, and the wide field of children's diseases ordinarily regarded as coming within the province of the surgeon is gone over with more or less thoroughness. Necessarily some subjects are treated with brevity, but others are gone into with considerable fulness. Nor has the work been hastily prepared, for almost every page bears testimony to careful research, and the compilation of recently proposed plans of treatment is full. There are many points upon which we might dwell in detail, but we will confine ourselves to mentioning the subject of hip-joint disease, which is treated at considerable length in a separate chapter. Mr. Owen holds that, while the majority of cases have an origin in early injury, many cases occur in which no such cause can be made out. The method of making a diagnosis is detailed with care, and we are pleased to observe, both in this connection and elsewhere, the stress Mr. Owen lays upon gentleness as an aid to arriving at a correct and accurate conclusion in the diseases of children. Not that gentleness should ever be neglected in any case, but Mr. Owen points out that their susceptibility and timidity make it especially important in children. The extreme importance of rest in the treatment of these cases, especially in the early stage, is dwelt upon, and the value of extension by a weight is recognized, but Mr. Owen is an enthusiastic advocate of Thomas's splint, properly appreciating the value of the fresh air which its application will enable the patient to get. Nor would we say anything against that splint or the similar one devised by Dr. Agnew, but we have never yet seen the apparatus which will secure as perfect quietude, while the patient

is going about, as can be obtained in bed. We have not found it necessary to keep up perfect extension of the joint by compelling the patient to be perfectly still, as Mr. Owen suggests, but obtain very satisfactory results when the child is allowed to sit up partially and amuse himself with toys and books on a bed-table. When cases are seen early and thus treated, we have seen no occasion to resort to any other means of treatment. Of course, tonics and fresh air, obtained by moving the bed out-of-doors in suitable weather, are invaluable adjuvants. Mr. Owen has incorporated in his book sections on embryology bearing upon the various topics in hand. The illustrations, if not very fine, make the author's meaning quite clear, and we have no hesitation in commending the volume as valuable and trustworthy, containing, as it does, a vast amount of information in very small compass.

SOCIETY PROCEEDINGS.

CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, May 28, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

ABDOMINAL SECTION FOR PELVIC ABSCESS.

The Secretary read the following letter:

7, THE CRESCENT, BIRMINGHAM,
April 14, 1886.

If not too late, I should like to take part in the discussion which was entered into at the Gynecological Society of your city upon abdominal section for pelvic abscess. My remarks, of course, are discursive and not very conclusive, because they are based upon only a very few points to which I want to draw attention.

The first is this: I object to the use of words ending in *otomy*, to mean various operations all of which are practically identical in character but different in detail and not one of which can have any exclusive or absolute identification by any particular name. Thus Professor Christian Fenger, in the discussion, objects to the use of the word laparotomy, and he introduces another which is perfectly new to me and I hope it will never be used again: it is *oncotomy*. Dr. Fenger objects to laparotomy in a sense where I certainly have no objections, and his very objections only show how utterly absurd all these words are. There really ought not to be any such word as laparotomy in existence, because the signification of its derivatives in the use of the people who spoke the language is such that it could not by any human ingenuity be applied to any modern surgical proceeding. Now the words "abdominal section" are sufficiently English to be understood by everybody, and they are sufficiently distinctive to enable us to understand at once that when they are used the peritoneum is opened. I therefore wish, through your powerful society, to protest against the use of all these stupid words of Greek formation. I wish also to protest against the absurd distinctions drawn by Sänger, which are quoted by Dr. Fenger on the subject of pelvic abscess.

He distinguishes six kinds of salpingitis:

1. *Septic*, the existence of which I entirely dispute as a specific ailment.

2. *Tuberculous*, which again I deny, except that it has an existence as the third and contracting stage of pyosalpinx.

3. *Syphilitic*, not one particle of evidence of this have I ever seen.

4. *Actinomycotic*, which is an equally ridiculous subdivision, based on mere theory, not on fact.

5. *Gonorrhœal*, to which the great bulk of the cases belong.

6. *A mixed form.* Instead of this sixth, or mixed form, I would say that there are a great many cases to which we cannot attribute any actual origin, a number of cases occurring in virgins where the existence of gonorrhœa would be an impossibility, and where there was no puerperal mischief.

Dr. Fenger's paper has always seemed to me to be an illustration of the German savant evolving the descriptions of the camel out of his own consciousness. My descriptions, on the other hand, are taken from some hundreds of cases upon which I have performed operations and the history of which I know as completely as it is possible to obtain information.

In Dr. Reeves Jackson's paper there are two points to which I want specially to draw attention, and they are not of much importance because they are chiefly questions personal to myself.

The first is a passage in which it is said "Lawson Tait, of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible contingencies of pelvic inflammations by attacking the disease at its original seat; Lawson Tait removed the suppurating uterine appendages, Martin operated for suppurating periuterine hæmatocele. Tait operated for suppurating hæmatoma of the right Fallopian tube in 1878, and he removed both tubes for pyosalpinx, and an ovary for abscess in 1885. In 1885 Martin performed laparotomy in three cases of intraperitoneal hæmatoma, namely, retrouterine hæmatocele." Now accuracy of date in a matter of this kind is rather important for one's own personal reputation, and Professor Reeves Jackson has underestimated my claim for priority by at least seven years. The first operation which I performed for suppuration of the uterine appendages was done on the 11th of February, 1872, and there will be found in the last edition of my book on *Diseases of the Ovaries*, twenty-two cases which I had performed up to the middle of August, 1882, without a death. Since then I have operated upon hundreds. The first case of suppurating hæmatocele which I operated upon is published in detail in the same book; it was in February, 1879, and since then I have operated upon thirty-two cases without a death, and all have been completely cured. It will thus be seen that in none of these matters have the German surgeons approached English surgery as rivals in priority. They have been mere followers in every particular, and I regret to say their following has been practised without that recognition to which our priority gives us every just claim.

The second point is that in which I find Professor Byford speaking in terms of my own work which no words of mine can sufficiently recognize or express my appreciation of, and here certainly his words of caution are worthy of a little note. What I fear—in fact, what I already feel—is that the remarkable success which I have had, and of which Professor Byford speaks in such

strong terms, is really leading astray those whose opportunities have not been as my own, into the belief that the work is easy, simple, easily acquired, and free from risk. It is not so, and unless those who practise it choose to follow me in the rigid precautions and immense care which I give, not only to the mere performance of the operation, but to the surroundings of my patients and to every detail in connection with them, they will not obtain, they must not expect, the success which I have had. I have said that I fear—in fact, I already feel—that this success of mine is leading people astray, and I want to urge in the name of humanity, as well for the sake of the art we practise, that there should be less of the indiscriminate rushing into this kind of work which has been already deplored on both sides of the Atlantic. I am, etc.,

LAWSON TAIT.

DR. CHRISTIAN FENGER said that the letter of Mr. Lawson Tait relates in a number of points to his paper on "Laparotomy for Periuterine Abscess" as well as to some remarks which he made before the Society in a previous discussion. (See THE MEDICAL NEWS for March 27, 1886.) He, therefore, begged the Fellows of the Society to bear with him while he took up a little of their time in answering Mr. Tait's letter. When discussing Professor A. Reeves Jackson's paper, he objected to calling the operation in question a laparotomy. According to the Professor's description of the case, he had opened an abscess which was adherent to the anterior abdominal wall. He had consequently simply performed an oncotomy, an operation which, notwithstanding the division of the abdominal wall, does not differ materially from opening a deep-seated abscess in any other region of the body, as *e. g.* in an extremity. Whether opening the abdominal or peritoneal cavity be termed laparotomy or abdominal section or *Bauch-Schnitt*, is, of course, a matter of indifference, provided only that the meaning of the word be agreed upon. There is but one way of getting at the signification of a medical term, and that is by learning in what sense the term is employed in the medical literature of the different nations.

He must again maintain that laparotomy is not merely section of the abdominal parietes, but that the word implies the opening of the general peritoneal cavity with a view to perform some operation within that cavity. (See Linhardt's *Operationslehre*, Wien, 1862, p. 705; and Eulenburg, *Realencyclopædie*, Bd. ii. S. 37.) French authors occasionally use the word gastrotomy instead of laparotomy. Recently the operation has been called peritonotomy, which, on account of its correctness, should perhaps be preferred to the other terms.

It is of importance to distinguish between a laparotomy and the evacuation of a limited abscess by simply incising the abdominal wall. The two operations differ widely as to their consequent dangers. Where the general peritoneal cavity is opened, a well-known series of precautionary measures is required before and during the operation, in order to protect the patient from general septic peritonitis. Where an incision through the abdominal parietes leads directly into a limited abscess cavity, the precautionary measures essential to laparotomy may be dispensed with; the general peritoneal cavity is not opened, and there is no fear of general peritonitis. In the latter operation the peritoneum is not seen or not noticed, the incision wound is left open, and the limited cavity washed out and drained. In every country, medical authors hold these two operations apart. Opening a perityphlitic abscess, an adherent hepatic abscess or a parametritic abscess above Poupart's ligament is never spoken of as a laparotomy. Whenever we hear or read of a man having performed a series of laparotomies, we naturally suppose that he is experienced in performing intraperitoneal operations. Now, many a surgeon has opened a large number of intra-abdominal abscesses, and has never seen the peritoneal cavity. It is evidently important properly to limit the meaning of the term laparotomy; else we may misunderstand the description of a given case, and the statistics of laparotomies will necessarily be rendered valueless.

The next point Mr. Lawson Tait remarks upon is the question of priority of operating for pelvic hæmatocele.

By the mistake of Mr. Tait, part of what he said in the discussion of Professor Jackson's paper is ascribed to the paper itself. He was thus quoted in Mr. Tait's letter:

"Lawson Tait, of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible consequences of pelvic inflammations by attacking the disease at its original seat. Lawson Tait removed the suppurating uterine appendices; Martin operated for suppurating periuterine hæmatocele."

In the discussion he stated the dates at which Tait and Martin performed their respective operations. By a typographical error the dates appeared wrong in some of the copies of the transactions of the Society. 1885, instead of 1872, was given as the date of Tait's first laparotomy for abscess of the ovary; and 1885, instead of 1876, as that of Martin's first laparotomy for extraperitoneal hæmatocele. Considering his remarks as a whole, and examining his references to the literature on the subject, a careful reader would not have failed to recognize in the wrongly printed dates a typographical error.

Lawson Tait performed his first laparotomy for extraperitoneal hæmatocele in February, 1879. (See *Diseases of the Ovaries*, 4th edition. London, 1883, p. 346, and Tait's letter.) Martin performed the same operation for the first time in 1877, and a second time on the 31st of January, 1879. (See *Das Extraperitoneale Periuterine Hæmatom. Zeitschrift für Geburtshülfe und Gynäcologie*, 1882, VIII. Bd., Heft ii., S. 476.)

It will thus be seen that his statements concerning priority were correct. In the discussion of Professor Jackson's paper, he quoted Sänger's classification of pelvic inflammations. In criticising it, Mr. Lawson Tait speaks of "absurd distinctions." He wished to repeat that he regards Sänger's classification as complete and correct, and in accordance with the laws governing inflammatory processes in all organs of the body.

DR. CHARLES T. PARKES then read a paper on

UTERINE FIBROIDS TREATED BY THE FLUID EXTRACT OF ERGOT.

He related the history of four cases of uterine tumor, treated by the internal administration of Squibb's fluid extract of ergot. They all resulted in recovery by expulsion of the growth.

He found no insurmountable difficulty in giving the medicine, although when given for a prolonged period it creates nausea and disgust in some. This was counteracted, and the pain following its use controlled by combining it with morphine. It seemed to him preferable to the hypodermatic use, the latter being locally painful and often producing abscess; besides, it is not followed by any better result. In two of the cases treated by ergot, the tumor, when thrown off, proved to be true uterine fibroma — dense and hard, white and glistening when cut open, consisting of simple fibrous tissue. The other two following the action of ergot were soft myomata — pultaceous and semi-elastic—consisting mostly of connective tissue, confirming the diagnosis made. All four of these were evidently submucous tumors, or so slightly interstitial as to be practically covered only by mucous membrane.

Case I.—Mrs. S., American, forty-three years old, widow, three children, no miscarriages, menstruated first when sixteen years old. Never had any noticeable trouble with menstruation until three years previous to first examination; during these years she had suffered with irregular profuse hemorrhages which were now continuous, accompanied with exacerbations on the slightest exertion. His first examination was made February 20, 1876, at which time she presented the most perfect example of transparent flesh that he had ever seen. A large, finely formed woman, her flesh looked like alabaster, apparently destitute of blood. The legs were œdematous, the heart beat feeble and rapid, and the slightest exertion was followed by extreme palpitation and the most fearful feelings of suffocation. Her answer as to what she had done for her trouble was that she had taken "quarts of medicine." Vaginal examination revealed an enlarged uterus and patulus os, from which blood was rather freely oozing. The sound entered the uterus about five inches, the handle being deviated forward and to the left side. A diagnosis of submucous uterine fibroid was made.

The treatment adopted was the administration of strychnia and iron, together with wine and good diet for the general condition, and one-half drachm doses of Squibb's fluid extract of ergot every six hours, either to expel or kill the growth. Locally, to stay the hemorrhage, a small tampon of pulverized alum was applied to the *os uteri* and held in position by ordinary cotton tampons.

The first forty-eight hours' use of the ergot produced quite severe uterine pains, so acute that the patient, in her weakened condition, said they were unbearable. At this visit Professor T. D. Fitch saw her in consultation. The tampon of alum was removed, and Dr. Fitch's examination confirmed the diagnosis made, and advised the continuation of the treatment. As the bleeding had been entirely controlled by the tamponade, it was left out. The ergot was continued as before, and a sufficient dosage of morphine ordered, to make the pains bearable if they persisted. No further use of the tampon was required, the uterine contractions never ceased while the ergot was administered. On the sixth day of its use a foul-smelling serous discharge came on *per vaginam*, accompanied with slight general chilliness and a temperature of 102° F. The patient was assured that the tumor was surely coming away, and encouraged to bear "yet awhile" with her great suffering. On the eighth day the tumor was found in the vagina and removed. It was about the size of a duck's egg and very hard to the touch. After a short period of mild septic trouble the patient passed through a quick convalescence and rapidly recovered. Seen a few months ago, she says she has never had any illness since getting rid of this growth, and certainly looks well.

Case II.—Mrs. P., German, married, five children, no miscarriages, menstruation began at fourteen, now thirty-seven years old. Seen first in March, 1881. The patient is a robust, hearty woman. Never had any trouble until six months after the birth of last child, about one year ago, when she began to flow too freely and too often—as often as every week or occasionally twice a week. The blood was in large quantity and bright red in color.

The examination revealed an enlarged uterus—it could be felt above the pubis during bimanual examination. The sound entered easily for five inches, the handle deviating forward and to the left. Its use was accompanied and followed by very free bleeding.

Diagnosis: Submucous uterine fibroid on anterior wall. Treatment: locally the alum tampon was used as in the previous case. Squibb's fluid extract of ergot in half drachm doses every six hours. The patient was ordered to remain in bed. On the succeeding day all the tampon, except the alum, was removed. No hemorrhage; slight pains complained of. On the second day the pains were very severe and morphine was given to control them. The alum tampon was removed and a carbolized hot water injection ordered three times a day. On the third day pains still severe and a foul-smelling vaginal discharge commencing.

This condition persisted until during the night of the eighth day, when he was summoned to the patient on account of the unusual severity of her sufferings, the messenger, her husband, saying it was just as if she were in labor. On his arrival the pains had quite ceased. Examination showed the loss of considerable blood, and the vagina was found filled with a large fleshy mass, horribly offensive. The finger could be passed beyond it, and the largely opened cervix recognized. It was seized with a vulsellum forceps, twisted a few times upon itself, and then delivered. The mass was as large as a closed fist, dark colored, ragged all over its surface, and very foul smelling. The patient rapidly regained her usual health, and is well to-day.

Case III.—Mrs. E., thirty-three years old married, three children living, one miscarriage; menstruation commenced when fourteen years of age. Was first called to visit her January 2, 1885, for severe uterine hemorrhage. She never had any trouble with menstruation until about two years previous. Shortly thereafter she was operated upon for laceration of the cervix, without much relief to her trouble; since, she had gradually grown worse, so that she was not free from bleeding ten days in the month. One year previous to seeing her, the uterus was freely curetted and fuming nitric acid applied to the cavity to relieve the bleeding. This procedure failed in any good result.

At this visit the bleeding was extreme in degree. Examination revealed the pelvis largely filled with a smooth, doughy mass. After considerable searching the *os uteri* was found high up above and close to the pubis. It could only be found by crowding the finger

between the bone and the growth. The growth was exquisitely tender to the touch or any manipulation. Bimanual palpation discovered an uncertain mass above the pubis. The vagina was tamponed temporarily, and morphine administered hypodermatically. The diagnosis was reserved. It rested between hæmatocele and soft myoma. The tumor was compressible, at least its elements seemed to give way to the pressure of the finger; it was semi-elastic and painful under manipulation, filled the entire posterior half of the pelvis, and the os was carried well upward forward. It might be, and probably was, a myoma of the posterior uterine wall retroverted.

A few weeks ago he had the satisfaction of seeing the *fac simile* of this case, so far as the character of displacement and the position of the tumor was concerned in a patient under the care of Dr. Merriman, although the tumor in Dr. Merriman's case was much harder and more resistant. Dr. Merriman, with skill and apparently with ease, lifted the tumor out of the pelvis into the general abdominal cavity, after placing the woman in the knee-elbow position—a change bringing much comfort to the patient. Under the use of ergot the growth is diminishing in size.

The patient was put upon fluid extract of ergot in half drachm doses three times a day. The next menstrual period showed no change other than a diminished loss of blood. In June the flooding was quite free and accompanied with considerable pain. In July everything was as bad as possible, with so much pain that the ergot was discontinued. Repeated examination now narrowed the diagnosis down to soft myoma. The removal of the uterine appendages was suggested, in the hope that this procedure would anticipate the menopause, stop the bleeding, and lead to the gradual atrophy of the growth. In September consultation was solicited with Prof. W. H. Byford, when the patient was etherized and carefully examined. The sound, introduced with great difficulty, owing to the displaced position of the os, passed in over five inches, positively demonstrating the nature of the growth, its consistency showing it to be the soft variety of myoma. As the patient could not be said to be in danger of her life, the operation was refused by her friends, although the sufferer was willing enough to have it done.

The previous treatment was endorsed by Prof. Byford, and its continuance advised. The fluid extract of ergot was resumed and rendered bearable by morphine. The October illness was accompanied by slight hemorrhage, but excessive pain. These uterine contractions continued after the menstruation ceased, until, during the last week of October, they became labor-like in character. Examination now revealed that the uterus had righted itself, the os was becoming patulous and its edges thinned out; through its opening the projecting tumor could be felt. On the second day of November pieces of the broken-down mass, horribly offensive, could be seized with the forceps, pulled out of the uterus, and cut away.

Chilly sensations began to be felt by the patient, sweating came on, temperature ran up to 101° F., and a mild septicæmia was established. During the following week the pains never ceased. Quinia was administered freely. The vagina and uterus were irrigated with hot carbolized injections, and portions of the mass removed as fast as they could be reached; at the end of a week the last remnant was gotten away. The patient was very much reduced physically, but rapidly convalesced, and is now perfectly well, with her menstruation normally reëstablished. Fully a quart of soft pultaceous pieces of the growth was removed.

Case IV.—Mrs. L., German, thirty-four years old, one child, was seen first November, 1885. She had been suffering with increased menstrual flow for a year. She came to me to be treated for an external, painful, labial swelling. It proved to be a vulvo-vaginal abscess. It was opened freely, and gave no further trouble. A uterine tumor was noticed and examined. It was found to be of considerable size,—could be detected above the pubis. She was put upon one-half drachm doses of fluid extract of ergot every six hours. This she continued for six months steadily, with varying conditions of pain and hemorrhage, until, in April, 1886, the hemorrhage ceased, pain became very severe, and a shreddy, foul-smelling discharge manifested itself. She was removed to the St. Joseph's Hospital, and after ten days of antiseptic washings and removal of masses of broken-down tissue, the mass was entirely extruded. This patient had also quite a severe septicæmia, but finally recovered, and is now well.

Aside from crucial demonstration, it seems reasonable to assert that these four cases were cured by means of the remedy used, and by that alone. It is well known that most authorities state that no positive reliance can be placed on the use of ergot. His experience surely, as here illustrated, and confirmed by other cases seen, leads him to think that this adverse judgment must be qualified, especially in the treatment of the submucous bleeding fibroids of the uterus. If the growths be partially interstitial, the less the thickness of uterine tissue between them and the mucous covering, the more certain will the remedy be curative. Of course, it will be impossible to demonstrate the exact amount of uterine wall which forced contractions will destroy; hence a trial is desirable in all cases not purely subperitoneal and pedunculated. Still he is quite convinced that the severity of the hemorrhage gives one a good reason to speak *positively* of the results to be accomplished by its use. He has not deemed it necessary to look up the history of the first use of this remedy for stimulating uterine contractions. It is sufficient for him to say that his confidence in the remedy and persistence in its use, even when failure of good results seemed certain, has followed directly as the result of the teachings and experience of Prof. Wm. H. Byford, who has never lost an opportunity to urge upon the profession his belief in the specific action of the remedy, and its absolute certainty of cure in many cases. He is quite sure that Prof. Byford deserves the credit of being the first to make use of ergot with the idea of destroying the vitality of the growth, and, in addition, causing its expulsion from the uterus.

The third case shows plainly how absolutely unnecessary any operation would have been. The removal of the appendages might have stopped the hemorrhage, but such a perfect cure as now exists could never have followed operation, to say nothing of the harm done by unsexing the woman; still, no case could present better reasons for such a procedure, none in which it would have been more justifiable from the indications present.

To him it brings the lesson to make oöphorectomy the *dernier ressort* in all cases, certainly to give the remedy used at least a six months' trial without result before operation be sanctioned.

The difficulties attending the differentiation between a sac of fluid and the soft myomata was well illustrated by this case. The sensation communicated to the touch was scarcely distinguishable from fluctuation. It was only after repeated examinations under ether, and the use of the sound, that the diagnosis was satisfactorily settled.

The fourth case for a time seemed one in which the treatment would come to nothing. Every one became discouraged. The suffering was increased, and no advance was made, apparently. By persistence the cure was accomplished. In this case operative interference was solicited by the patient, and would have been most readily submitted to, without any urging. He read aright the indications which authorities give, to justify the resort to removal of the uterine appendages; they were all present in this case, and more too if needed. Certainly the final result has proven that such interference would have been uncalled for and lamentable.

He was quite well aware that four cases cannot be considered absolutely demonstrative of any rule, still these four increase the number already published in proof of the curative action of ergot, administered thoroughly, for submucous uterine growths. It is impossible for him to understand how some good authorities can still assert their disbelief in ergot; in fact, calling it the most inert and disappointing of all drugs. No law has as yet been evolved fixing even by approximation the period of time required for the effects of the medicine to show themselves. The idiosyncrasies of the patient, the thickness of the uterine envelope, the distance from the mucous membrane, the purity of the drug, and many other conditions, render it scarcely possible that any such law can ever be laid down. The trial should be made patiently and persistently, just so long as the patient's condition will warrant its continuance, and a complete expulsion of the growth, followed by rapid recovery, will be the reward.

DR. F. E. WAXHAM read a paper on

OCCLUSION OF THE OS UTERI AS AN IMPEDIMENT TO LABOR, WITH A REPORT OF TWO CASES.

Having met with occlusion of the os but once in several hundred cases of labor, and knowing of a number of physicians in extensive practice who have never seen this condition present at the time of confinement, he is convinced that it must be of rare occurrence, and the history of two cases may not be uninteresting.

Mrs. S., German, primipara, twenty-nine years old, fell in labor about 9 P. M., February 21, 1885. The membranes ruptured soon after the commencement of labor and the amniotic fluid gradually drained away.

The patient was seen between 3 and 4 A. M., at which time the pains had become very severe and frequent. Upon examination the head was found low down in the inferior strait, almost presenting at the vulva, and covered apparently by a thin membrane through which the advancing head threatened to burst with every pain. Upon the most careful digital examination, no os could be discovered nor the slightest indication of one. Professor Nelson was summoned and promptly responded. His more experienced finger detected a very slight dimple in the centre of the presenting tissues. By keeping the finger upon this slightly thickened tissue, he discovered that it became very much thinner with every pain, while as the pain subsided the tissue assumed a very slightly umbilicated appearance. By firm and continued pressure upon this suspicious spot an opening was at length effected and the os gradually dilated. As the labor proceeded slowly, and fearing the result to the child of so long a delay of the head in the pelvis, and the os being fully dilated, the forceps were applied. The child was delivered without injury to the mother, but it was asphyxiated and required considerable effort in resuscitation. Professor Nelson stated that this was the second case that had come under his observation, and kindly gave him the history of the following one. He was called to attend a lady in her first confinement, a Swede, twenty-three years old, and married about one year. Making a hasty examination, he found a well-formed cervix but did not detect the os. On returning a few hours later, the head had descended to the inferior strait and was indeed presenting at the vulva and covered by the cervix, which had become so thin as to resemble the membranes. The membranes had already ruptured and the amniotic fluid had gradually escaped. There was no appearance whatever of the os. It could not be detected by the finger, and the head seemed about to burst through the uterine tissue. The patient was placed before a window, the labia separated and careful search made for the os. Only after a prolonged examination was it found. It was patulous only to the extent of admitting the very finest surgeon's probe. After this had been introduced and worked about, a second probe was passed, and by separating them the os was gradually and sufficiently dilated to allow the finger to enter. The os was then rapidly dilated and labor progressed normally.

Dr. Waxham finds the literature on this subject quite meagre, many writers on obstetrics omitting the subject entirely, while others refer to it very briefly.

All authorities agree that the occlusion of the os is the result of inflammatory change occurring subsequent to impregnation. It is a noteworthy fact that in both these cases the membranes ruptured and the amniotic fluid escaped in the very early stages of labor, showing that the membranes were adherent to the uterine tissue about the internal os. As the internal os dilated, rupture of the adhesions and of the membranes necessarily followed.

ELECTION OF HONORARY FELLOWS.

Mr. Lawson Tait, of Birmingham, and Professor T. Gaillard Thomas, of New York, were elected Honorary Fellows of the Society.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, May 24, 1886.

THE PRESIDENT, JAMES T. WHITTAKER, M.D., IN THE CHAIR.

(Continued from page 81.)

DR. JAMES G. HYNDMAN, in introducing the subject of

THE CHEMISTRY OF ECHINOCOCCUS,

said that numerous investigations have been made of the wall of the echinococcus cyst as well as of the con-

tents. While a knowledge of the nature of the wall will probably never be of any considerable clinical value, it should nevertheless be referred to in the discussion. It is described as being sometimes delicate and of a dull white color, at others very substantial and translucent; of about the consistence of coagulated albumen and divided into distinct lamellæ. It consists, according to Heller, of a substance resembling chitin, but whether actually chitin or not has not been positively determined. Its insolubility in caustic alkalies and dilute acids has led to its classification among those substances of chitinous composition. Chitin is a colorless, amorphous body which is insoluble in water, alcohol, ether, acetic acid, dilute mineral acids, and in solutions of the caustic alkalies. Its composition is believed to be $C_{15}H_{26}N_2O_{10}$. The researches of Hoppe-Seyler and Baumann have shown that, when heated with acids, chitin combines with the element of water and splits up into a nitrogenous body, glycosamine and acetic acid.

Investigators have rendered our knowledge of the chemical constitution of the echinococcus cyst contents far more accurate than that of the cell-walls. A summary of the chemical examinations made by a number of competent observers gives the fluid the following characters: It is colorless, contains from 1.5 to 2 per cent. of solids, and has a specific gravity varying from 1.007 to 1.015. It contains a considerable proportion (½ to ¾ per cent.) of chloride of sodium, and some earthy salts of succinic acid; also inosite and grape sugar in small amounts. Albumen, if present, is in small amount.

It was long believed or rather hoped, that the chemical composition would be found to differ according to the organ in which the cysts were situated, and thus afford valuable assistance in diagnosis. This hope was, however, doomed to disappointment. In the case reported by Hayem and Graux (*Progrès Méd.*, No. 19, 1874), in which the echinococcus vesicle clogged the ductus communis choledochus, causing attacks resembling hepatic colic, chemical investigation showed the contents to be of a greenish-yellow color, slightly alkaline, and of a specific gravity of 1.020. It consisted of 97.9 per cent. water, 0.18 per cent. mucus, 0.4 per cent. albumen, 0.58 per cent. chloride of sodium, 0.7 per cent. sulphates, soluble and insoluble carbonates, extractives and coloring matters.

In some cases of liver echinococcus, leucin has been found, while in others it was absent, the investigations being conducted by the same observers.

Succinic acid and grape sugar also fail us as positive aids in diagnosis. Jacobsen found them both in two cases of liver echinococcus and failed to find them in others. Wilde found both these substances in a splenic and in a pulmonary case.

Habran's claim that the so-called hæmatoidin crystals have never been found in any echinococcus cysts except those of the liver and bile-passages, has not yet been disproved, and is worthy, if not of credence, at least of further investigation.

Chemical examination may also be of service in the diagnosis of cysts connected with the kidney as the characteristic urinary constituents have been found in no others. Kidney echinococci, too, are the only ones in which any considerable amount of albumen has been found, the only exception to this being that of repeatedly tapped cysts.

It will be seen from what has been stated, that, although the chemistry of this fluid is tolerably well understood, there is no ingredient which can be positively and absolutely relied upon in the formation of a diagnosis. In the absence of any pathognomonic ingredient, chemical must rank secondary to microscopic examination in the diagnosis of this disease.

DR. WALTER S. CHRISTOPHER remarked that the chemistry of echinococcus is rather limited. The fluid itself when uncontaminated with the products of inflammation, is usually colorless, but marked by a slight opalescence. It is neutral in reaction and has a specific gravity varying from 1.006 to 1.015. Albumen, when present at all, exists only in small quantity. Sugar is often present, and inosit frequently forms as much as 1 per cent. of the total weight of the fluid. There are also found traces of urea, kreatin, and succinic acid, besides a considerable quantity of chlorides. Of the ingredients present, two are of special importance because of the aid they lend to diagnosis. These two are inosit and succinic acid, Inosit, the so-called muscle sugar, is found in certain of the normal fluids of the body, but in none which ever collect in such large quantity as to produce a cyst. The same may be said of succinic acid; except that it is occasionally found in hydrocele fluid and in the fluid of hydrocephalus, but such collections of fluid could hardly be confounded with an echinococcus cyst. It is somewhat unfortunate, however, that the tests for inosit are such as cannot be applied at the bedside, or, as a rule, by the busy physician. To determine the presence of inosit, it is necessary to separate it from the fluid, and apply the tests directly to the pure sugar. The method of collecting the inosit and applying the test for its presence was then described in detail.

Succinic acid, he continued, is less difficult of recognition than inosit, but it is not so often present. A flocculent brown precipitate is thrown down on the addition of a ferric salt. This is readily distinguished from ferric hydrate by the absence of a decided alkaline reaction, and from basic ferric benzoate by the failure of mineral acids to precipitate succinic acid. The importance of detecting inosit and succinic acid in a fluid supposed to be echinococcic should not be underestimated. While their absence would not prove that the fluid was not from an echinococcus cyst, their presence certainly would prove that it was. And when we consider the other infrequent occurrence of hooklets, and their difficulty of recognition when found, the value of succinic acid and inosit is not less than the classical sign itself.

THE PATHOLOGY OF ECHINOCOCCUS.

DR. E. W. WALKER reviewed briefly the morbid anatomy of the disease. The echinococcus after it has reached the liver or other organ develops a cyst, as has been described. From this cyst are developed usually internally, but sometimes externally, secondary, or daughter cysts. When the cysts develop endogenously, or within the mother cyst, we have a large cystic tumor formed and enclosed in a common sheath, but when the growth is exogenous, or outside of the mother cyst, the entire organ may become riddled. The case under consideration is an example of the latter form of growth. The liver, in the specimen presented, had become

almost entirely transformed into a mass of cysts. There were at least twenty-five or twenty-six cysts of large size, and numerous small ones. These cysts contained fluid varying in specific gravity from an almost watery to an almost semisolid consistence. Microscopic examination of the fluid revealed little of importance. Fragments of membranes were seen, broken-down liver cells, fat globules, cholesterine—in fact, an atheromatous collection of material, but no hooklets. The speaker did not find scolices, although Dr. French reported that he had found them. In a specimen which Dr. Whittaker had obtained by aspiration, and submitted to him for examination, the speaker had found two or three rather dubious specimens of hooklets, too uncertain in their appearance to permit him to make a positive diagnosis from the specimen before operative measures had been undertaken.

DR. JAMES M. FRENCH remarked that the description given by a former speaker of the microscopic appearances of not only the echinococcus, but also of its capsule, the daughter cysts, and the scolices, had been so complete as to leave little to be said in regard to the microscopic examination of such cases. Speaking of the case under consideration, he said that he had made repeated examinations of fluid taken from different large and small cysts after death, as well as of fluid which he had obtained at the time of the operation. The latter specimen was translucent, of low specific gravity, and of a reddish tinge owing to the admixture of a small quantity of blood from the incision. The microscope revealed only red blood-corpuscles, a few white corpuscles, and numerous inflammatory cells. Of the other specimens examined some were clear and limpid, while others were thick and oily, even of an almost semisolid consistence. In these specimens he had found, in varying numbers, cholesterine crystals, free fat globules, fatty liver cells, fragments of the internal fibrillated membrane of the capsule, and inflammatory corpuscles. Calcareous matter was not present. Free hooklets could not be discovered, nor anything resembling them. In one or two instances, however, he had seen what he thought were unquestionably immature scolices. These were attached to fragments of membrane, and would have escaped recognition but for the row of minute hooklets about the head.

DIAGNOSIS OF ECHINOCOCCUS.

DR. F. FORCHHEIMER said that one of the first points which come up in this connection is that hydatids are with us an exceedingly rare affection. As will be seen further on, cases are met within which the veriest beginner will be able to make an approximate diagnosis; while, on the other hand, there are those in which the diagnosis is either an impossibility or a brilliant inspiration—if you will, a guess. A practising physician in Iceland will have no more difficulty in recognizing this disease than we would in recognizing a pneumonia; we, on the other hand, would have to give very much more thought to cases than is ordinarily done in practice, in order to take into consideration even the possibility of the existence of an echinococcus in making a differential diagnosis. If we are, then, to arrive at any such diagnosis we must in all cases of fluctuating tumors constantly remind ourselves of the possibility of an existing hydatid, and all our tables of differential diagnosis of fluctuating tumors ought to include this form of tumor. The question of necessity, so far as the welfare of our patients is concerned, of doing all this bears in an altogether different direction, and need not be discussed under this heading.

Given, now, a patient with a tumor, the question that arises first will be for us to determine why this tumor can be looked upon as hydatid. To answer this question the patient must be questioned, he himself examamined, and lastly, the tumor most carefully examined. As to the patient, we will find that sex has no predisposing influence—that age, however, is to be taken into very great consideration. The great majority of cases occur between the twentieth and the fortieth years of life. According to Davaine, there are but two non-Icelandic cases on record in children under ten years of age, one, very doubtful, of Cruveilhier in a child twelve days old, and another by Bodson in a girl of four years. Charcot has reported a case in a man of eighty-one, and Monod in a patient of sixty-seven years. The appearance of the patient may or may not be of importance. As a rule, it is not; the presence of a tumor is all that has inconvenienced the patient in the case that has here been presented. He came to his physician apparently a well man; looking well, feeling well, having had no fever, simply possessed of a tumor, or having some function interfered with by its presence. Sometimes, depending upon the location of the tumor or the processes that have been going on within it, the picture is altogether a different one. Pain, fever, emaciation, cachexia, or local symptoms, with all that these may imply, and the patient a most undoubted wreck. With regard to pain, the statements that come to us from those who have seen the greatest number of cases vary very much. Nearly all the authorities that I have been able to consult (Heller, Davaine, Cobbold) claim that the absence of pain is a characteristic of hydatids, while Finsen, who has seen more cases than nearly all the other observers taken together (245), says most distinctly that pain is complained of in all cases and that long before the tumor can be felt. The fact that the most important contributions to our subject have been made by men most interested in the biological aspect of the question must not be overlooked; it would seem more rational, from a clinical standpoint, to suppose that a tumor would produce some pain even if it is not sufficiently appreciated by the physician, as Bamberger says in his classical work on *Diseases of the Chylopoietic Organs:* "Hydatids of the liver sometimes arrive at a very great degree of development . . . . in individuals who have never complained of symptoms to be referred to the liver. In others, however, the development is accompanied by more or less intense, undefined, pressing or lancinating pains." The time taken for the development of the tumor or tumors must also be taken into consideration. Hydatids are a very slow growth, taking years for their development (10–15, Davaine).

Coming now to the examination of the tumor, we will find that there are some things that will make our diagnosis a very easy one, while in other cases it will be impossible. The locality of the tumor must be determined precisely; more hydatids are found in the liver than in all the other organs taken together; after this organ comes the lung. The tumor itself is, as a rule, spherical, fluctuating, and dull upon percussion. Its outlines are

smooth; it is elastic, and when examined in a peculiar way gives a sign which is considered almost pathognomonic by most authors. The latter is called the hydatid fremitus (frémissement) of Brianzon, not Piorry, for the former has undoubted right to priority. The French authorities are extremely particular concerning the method by which this symptom is to be detected. Brianzon states that "the tumor must be grasped as firmly and exactly as possible, exercising a slight pressure, and with the other hand a sharp and rapid blow is to be given." Others are still more explicit. The sensation perceived by the hand grasping the tumor is described in various ways; a trembling as of jelly; the sensation produced when touching a piano-string of low pitch while striking the key of the note itself, etc. If we look at the physical basis of this phenomenon, we find that when a fluid is contained within elastic walls and is set into vibration the fremitus is produced. As Skoda puts it, "If percussion is made upon a stomach filled with water, and held in air, we will have the clearest conception of what Piorry understands by the hydatid tone." Davaine practically admits this explanation. One can hardly be allowed to doubt the opinion of Skoda on so simple a matter, and it is therefore but logical to assume that the fremitus is not absolutely characteristic of hydatids. Any collection of fluid under the above-mentioned conditions, when struck and examined in the way described, will give the hydatid fremitus. The discussion of its occurrence in acephalocysts, therefore, is one that is upon a wrong basis—the existence or non-existence of buds being a secondary consideration, the relation of fluid to the wall and the elasticity of the latter, being the primary one. If we look to our authorities, we find Davaine, indeed, the whole French school, putting their trust absolutely upon this one sign. Heller states that it is "almost pathognomonic;" Cobbold says that "it scarcely differs from the ordinary impulse communicated by fluid matter within any other kind of tumor;" Bamberger has found it in ascites and ovarian tumors, and therefore conceives it not at all characteristic. Besides, Frerichs, who seems to believe in the sign, says that he could not detect it in more than half his observations. And lastly, the tumor frequently is in such a locality that it cannot be examined for this symptom. Taken all in all, then, the hydatid fremitus is going the way of all other pathognomonic signs.

When the modern physician deals with a tumor concerning the contents of which he is in the dark, he proceeds to investigate it with an exploring needle, hypodermatic syringe, or aspirator. By means of one of these methods he frequently obtains results most valuable to his diagnosis. When in one case there is enough fluid to be drawn off, this must be examined most carefully. It will be found to be a clear, sometimes yellowish, neutral or slightly alkaline fluid, of a specific gravity varying from 1.007 to 1.019. This fluid does not, as a rule, contain any albumen, but is very rich in sodium chloride. Other substances are found, as sodium and potassium succinate, leucin, inosit, grape sugar, and hæmatoidin. Of all these, the absence of albumen and the presence of sodium chloride in large quantities (as high as 0.84 per cent., Jacobsen, Heller) seem most characteristic. Of these two signs, the sodium chloride is the most constant, albumen being frequently found—always after the tumor has been frequently tapped. It would be very convenient if the presence of succinic acid could be relied upon as a characteristic test. According to Hoppe-Seyler, succinic acid is found in the juice of various organs, spleen, thymus and thyroid glands, in the fluids from hydrocephalus and hydrocele, the blood, and possibly in the urine. Any possible mistake between the parenchymatous fluid of the organs mentioned above could be avoided by noting the quantity, color, and the chemical reactions of the fluid, and, above all, by the location of the tumor. The same can be said for hydrocephalus and hydrocele, and it would therefore seem that we had found in the presence of succinic acid a reliable test. Especially can this be relied upon because it is a test which can be executed by the beginner—the addition of a ferric salt (ferric chloride) produces a brown, insoluble precipitate in fluids containing succinic acid. If albumen be present, absolute alcohol will precipitate both it and the acid; with the coagulation of albumen comes down the succinic acid—after filtering off the fluid the acid is readily dissolved in water, and the test can then be applied. If we find the acid then, we can be sure that we are dealing with hydatid fluid. Unfortunately, it is not found in all cases, probably not in the majority of the cases. All the other substances found in the tumor are determined more by its locality than by its character, and are therefore of comparatively little importance because they may be found in so many fluids. After the chemical comes the microscopic examination. Here we come to evidence that points with absolute certainty to the diagnosis. The presence of the ectoderm of buds or of hooklets is absolute certainty of the existence of a hydatid. These have already been so well described that I will not again go over the subject. It may happen, however, that either on account of the rupture of the tumor, the extreme smallness of the instrument, or the inaccessibility of the tumor, that neither of these can be found. In such a case we must rely upon the preceding signs. If they are all absent, a diagnosis naturally becomes an impossibility. This must happen, and perhaps quite frequently. A tumor the presence of which is not observed by the patient will certainly not receive much attention at the hands of the physician. Symptoms produced by the presence of a tumor, the latter being inaccessible, will be thoroughly examined into, the nature of the tumor being as obscure as its locality, unless other tumors be observed in different parts of the body—for us, especially the liver and lungs. When the tumor itself can be examined there can arise a doubt only in case it has undergone ulceration, suppuration, or the so-called tubercular degeneration. In the latter instance, especially in echinococcus multilocularis, the fluid may not show any of the characteristics of hydatid fluid. Under ordinary circumstances one or other of the signs just described will be found.

(*To be continued.*)

CORRESPONDENCE.

ERROR IN STATEMENT OF RESULTS OF BATTEY'S AND TAIT'S OPERATIONS.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of July 3d, Mr. Tait says: "I brought from a distance of forty miles the patient whom he says died after the operation on August 1, 1872," etc.

This is another "slip of the pen." At no time have I said that this patient *died*. The statement in my paper, at the Congress, was a simple repetition of the assertion of Mr. Tait himself in the *British Medical Journal*. It was written some time before and ought to have been omitted.

Respectfully yours,

ROBERT BATTEY.

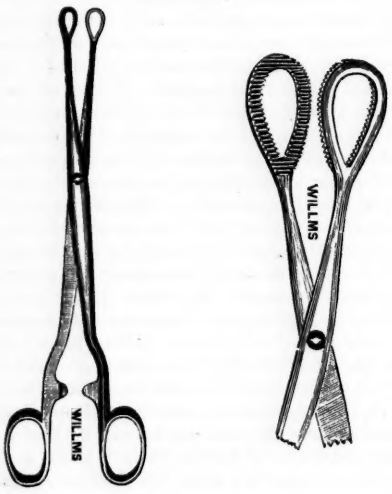
ROME, GA., July 10, 1886.

NEW INVENTIONS.

COMBINED SPONGE AND PLACENTAL FORCEPS, AND CURETTES, ETC.

BY ROBERT T. WILSON, M.D.,

ASSISTANT SURGEON TO THE HOSPITAL FOR THE WOMEN OF MARYLAND, BALTIMORE, MD.



In these cuts is shown a useful instrument calculated to be of service in several ways, namely:

1st. As a sponge forceps.

2d. As a placental forceps, after an abortion, where the membranes are retained.

3d. By taking the instrument apart, one has two curettes, which may be used when a dull curette of their size is required.

4th. As a forceps to be used in the removal of a stone from the bladder.

5th. As a forceps for holding the tongue (an instrument an anæsthetist sometimes wants).

No doubt the forceps will be found to be useful in more ways than those here mentioned. They were made for me, in February, 1885, by Chas. Willms & Co.

I append an opinion in regard to them by my friend, E. C. Carter, M.D., Assistant Surgeon U. S. A., to whom I presented a pair last year:

"I had an opportunity to try your forceps in a case of abortion, criminally induced, with retention of membranes. The forceps did the work required of them perfectly, and I am convinced the woman, a Mexican, would have died if I had not had them.

"Indeed I regard the forceps as a valuable addition to my armamentarium."

NEWS ITEMS.

CONFERENCE OF M. GRANCHER ON THE PROPHYLAXIS OF HYDROPHOBIA.—On June 22, 1886, M. Grancher, the collaborator of M. Pasteur, presented, for the first time, the clinical history of the patients treated for hydrophobia by vaccination. The persons bitten and vaccinated were grouped in three classes:

1. Those bitten by a dog of which the nervous system was sent to Pasteur's laboratory, inoculated in rabbits, and caused death of the latter by hydrophobia; or those who had been bitten by a dog the bite of which had caused death by hydrophobia in other animals or man.

2. Those bitten by a dog which before or after death had been examined and declared rabid by a veterinarian.

3. Those bitten by a mad dog which had escaped observation.

The statistics extend to April 22, 1886.

The total of the three categories includes 1335 patients. Elaborate and rigorous statistics prepared by M. Leblanc, Member of the Academy of Medicine and Veterinarian to the city of Paris, show that of 100 non-vaccinated persons bitten by rabid animals 16 die.

In the first group above mentioned there were 96 patients, of which 1 died, a mortality of 1.04 per cent.

In the second series are 644 subjects and 3 deaths, a mortality of 0.46 per cent., or for the two series, of 0.75 per cent.

In the third series are 232 cases, which are here disregarded.

The mortality among patients bitten on exposed surfaces (the face and hands) was in the first group 54, with 1 death, mortality 1.8 per cent.; in the second group, 400 with 3 deaths, mortality 0.75 per cent. M. Brouardel, in examining the statistics of the Council of Hygiene from 1862 to 1872, finds that in non-vaccinated persons bitten on exposed surfaces, the mortality is 80 per cent.

In addition, M. Pasteur has vaccinated 48 persons bitten by mad wolves; of these 7 have died, giving a mortality of 14 per cent. M. Brouardel has shown that non-vaccinated individuals similarly bitten present a mortality of 66.5 per cent.

If the efficacy of the rabic vaccine be compared with that of the *charbon* vaccine and the Jennerian lymph, it is found that the three agents have practically the same value.

Before the introduction of the Jennerian vaccination, out of 1000 smallpox patients, 500 died, while after its introduction but 23 out of 1000 vaccinated persons succumbed. The value of Jennerian vaccine is, therefore, $500 : 23 = 21.7$.

Similarly for *charbon*. Before the use of Pasteur's vaccine the mortality was 120 per 1000, while at present out of 1000 vaccinated animals but 5 die. The value of the *charbon* vaccine is, therefore $120 : 5 = 24$.

In rabies, before the method of vaccination, the mortality was 160 per 1000, while after vaccination the deaths were 7 per 1000. The value of the antirabic vaccine is, therefore, $160 : 7 = 22.85$.

The lecture was received with enthusiasm, and several hundred persons were unable to obtain standing

room. It will probably be repeated in the great amphitheatre of the École de Médecine.

PROFESSOR SEMMOLA, of Naples, well known for his numerous scientific researches, has just been honored by official appointment as Senator of the Kingdom of Italy.

GERMAN VACCINE COMMISSION.—The Chancellor has convened a Commission to consider the formation of a council which shall give authoritative instruction in the methods of securing, preserving, and transporting animal lymph. The Commission, under the direction of Dr. Kohler, consists of Drs. Koch, Gaffky, Schönfeld, Grossheim, Schulz, Pissin, and Hausburg, all of Berlin; and of Risel, of Halle, Kranz, of Munich, Chalybäus, of Dresden, v. Koch, of Stuttgart, Arnsperger, of Karlsruhe, Fischer, of Pforzheim, Reissner, of Darmstadt, Pfeiffer, of Weimar, and Krieger, of Strasburg.

CREMATION ON LONG ISLAND.—Since December 4, 1885, there have been forty-five bodies cremated at the Crematory of the New York Society, Fresh Pond, L. I.

MEDICAL PROGRESS IN CHICAGO.—Dr. Gregory writes to the *Medical Press*, of Western New York, his impressions on visiting Chicago after a six years' absence. He says: "In the six years last past, the medical element of Chicago has developed beyond the stage of personal gain, and reached that of public benefit. Physicians there are not now telling of the number of prescriptions written in a day, so much as they are detailing anomalous conditions met with. To be sure, even a professional man, breathing a truly professional spirit, cannot live in Chicago without becoming imbued with a business fervor; consequently nearly all physicians have a down-town office as well as one at their residence. This peculiarity is very noticeable, as sometimes as many as twenty-five physicians are grouped in down-town offices over a drug-store. St. Louis is the only other city where this concentration of physicians' offices down town and over drug-stores occurs so conspicuously. While in this feature Chicago differs from Eastern medical centres, she now resembles them in multiplied agencies through which physicians render the public gratuitous service. Six medical societies and an unknown number of clubs are maintained, and eight medical journals are published in the city. With this mass of public work, and the large number of men thus engaged, it must be evident that a far different professional spirit would be engendered than without such agencies. Chicago must therefore be recognized as the medical centre of the West. Undoubtedly one of the agencies tending to produce this result is the State medical law, for in marked contrast to its previous condition is the present absence of charlatan advertisers and nostrum doctors."

A BELGIAN PRIZE TAKEN BY AN AMERICAN PHYSICIAN.—The competition instituted by L'Académie Royale de Médecine de Belgique in 1881, and continued through 1883, is closed, and the report of the Commission of the Académie is made known. The question submitted was: "To Elucidate by Clinical Facts and by Experiments the Pathogeny and the Therapeutics of the Diseases of the Nervous Centres, and especially of Epilepsy." A number of memoirs were submitted, which were entered by European authors of preëminent rank in this department of research. The honors of the competition have, however, been awarded to an American physician, Dr. George T. Stevens, of New York. His memoir is the only one selected by the Royal Academy for publication, and the only one for which an award was made.

THE WOMAN'S MEDICAL COLLEGE OF NEW YORK.—Dr. H. M. Silver has been appointed Professor of Surgery in the Woman's Medical College of New York, and Dr. W. Meyer, Clinical Professor of the same branch.

SCIENTIFIC JOURNALS IN JAPAN.—A paragraph in *Nature* states that there are thirty-seven periodicals published in Japan, devoted to matters connected with education; of this number, seven are medical papers, with a monthly circulation of 13,514. There are nine papers relating to sanitary matters, and two to pharmacy. There are also nine other papers devoted to other branches of science; and no fewer than twenty-nine papers, with a circulation of over 70,000, engaged in disseminating a knowledge of popular science.

MORTALITY AMONG MEDICAL MEN DURING THE TYPHUS EPIDEMIC IN MOSCOW.—The typhus epidemic in Moscow, which is now, it seems, on the wane, has played great havoc in the ranks of the profession, no less than five junior police surgeons having already died. Most of them were without private means, and left their families entirely without provision. Five more surgeons have been attacked by the disease, and it is hoped that they may recover.

REGAL ANTISEPTICS.—The King of Servia, according to the journals, has issued the following proclamation: "Whereas it is irrefutably proved by science that the so-called antiseptic treatment of wounds yields more beneficial results than all other methods, we are pleased to order that henceforward the said antiseptic plan of treatment be solely employed in all the hospitals of our kingdom, and that corrosive sublimate and iodoform be used until our further disposition."

EARLY DISCOVERY OF COCAINE.—It is generally supposed that Niemann, a German chemist, was the first to discover cocaine, having isolated it as early as 1859. Dr. Clemente Torretti, late professor of chemistry and pharmacology at the University of La Paz (Bolivia), now writes to a South American journal that he has found irrefutable proofs, showing that in 1857 a Mr. Enrique Pizzi, his (Dr. Torretti's) predecessor in La Paz, succeeded in isolating the alkaloid of the coca-leaf, having been encouraged to make experiments on the coca leaves by Mr. Tschudi, the celebrated Austrian explorer, and Dr. Aquila Ried, a well-known personage in Valparaiso. Dr. Torretti adds that his assertion is not founded on documentary evidence only, but that he has actually found specimens of the cocaine manufactured by Pizzi in 1857.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its fourth annual meeting at St. Louis, Mo., on the 6th of October next.

DEFECTIVE DRAINAGE.—A London builder was recently fined five pounds for allowing a dwelling to be tenanted before a certificate had been granted showing that the house was fit for habitation. Another builder was fined forty shillings for the same offence. The defects related chiefly to the water-supply, drainage, and ventilation.

PEDESTRIAN INSTRUCTION.—On the 21st of June there was opened on Glen Island, in Long Island Sound, near new Rochelle, a "Military Camp of Instruction in Marching," under the superintendence of the veteran pedestrian, Edward Payson Weston. The competitors, who are made up of members of the various militia regiments, are each to walk twelve hours a day for six days, carrying forty and a half pounds in the way of knapsacks and accoutrements, and the camp will be continued for nine weeks. On the opening day, an address was delivered by Prof. R. Ogden Doremus, in which he referred to Weston as the father of walking in this country, stating that since 1867 he had walked 63,500 miles, and that Dr. Richardson, who examined him in London, pronounced him the healthiest man he had ever examined. He concluded as follows: "I would advise all, if they desire good health, to sweat daily as the result of physical exercise. Gentlemen, I look upon this camp as the initiative step toward splendid results in our country."

A NEW DENTAL JOURNAL.—There has just been published in Breslau the first number of the *Journal für Zahnheilkunde*, which is the official organ of the "German Association of Dentists graduated in America."

PURCHASE OF NEW GROUND BY THE MANAGERS OF THE PENNSYLVANIA HOSPITAL.—The Pennsylvania Hospital has purchased about five hundred acres of land at Newtown Square, Delaware County, to be used, for the present, as a "convalescents' retreat," and ultimately as a new site for the hospital for the insane. The land cost from $200 to $300 per acre, and comprises four of the best farms in the county. It is reported that the buildings now on the grounds will be utilized for homes or retreats for the convalescent patients of the Hospital for the Insane in West Philadelphia, and those of the department of sick and wounded, at Eighth and Spruce Streets. It is thought that the change of air will hasten the recovery of these patients, while, at the same time, it will make room for new patients and somewhat relieve the present crowded condition of the various wards. No building operations will be begun on the new grounds until next year, as the time of the contemplated removal of the Hospital for the Insane has not been decided upon, but it will not be for some time yet. Newton Square is about five miles south of Bryn Mawr, and about an equal distance northeast from Media.

THE HYGIENE OF THEATRES.—Given a spacious theatre, crowded during an evening performance for a period of hours, what is the difference of the effects on its atmosphere produced by the electric light or by gas, particularly as to the temperature and the generation of carbonic acid? Such is the problem which Dr. P. Renk, Professor of Hygiene at Munich, has just set himself to solve. Taking the Theatre Royal of that city, which is lighted by 1400 lamps on the Edison system, he tested the two kinds of illuminants, with the following results: During a representation which lasted from 5.30 P. M., to 10.15 P. M., and was witnessed by 1790 people, he found that while the rise in temperature in the pit was 11.1° C. with gas, it was only 7.7° C. with the electric light, and that in the upper gallery it was 10.7° with the former, and not more than 7.4° with the latter. As to the increase in the production of carbonic acid, the results were equally important. In the pit it was as 2176 with gas to 1221 with the electric light, and in the upper gallery as 2855 with the first to 1430 only with the second.

AUSTRIUM: A NEW ELEMENT.—Among the papers of the late Dr. Linnemann, Professor of Chemistry in the University of Prague, has been found a communication addressed to the Royal Academy, and bearing the title, "Austrium, a new metallic element." It describes a new metallic element obtained by the deceased from arthite from Arendal, having a spectrum with two characteristic lines in the violet, one of which is fairly coincident with an unidentified line in Angström's atlas. It is stated that the paper will be published in the transactions of the Academy.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JULY 13 TO JULY 19, 1886.

GIBSON, JOSEPH R., *Major and Surgeon.*—Granted leave of absence for three months, to take effect August 1.—*S. O. 158, A. G. O.*, July 10, 1886.

BENNETT, RICHARD, *Captain and Assistant Surgeon.*—Leave of absence extended six months, on Surgeon's certificate of disability.—*S. O. 162, A. G. O.*, July 15, 1886.

GARDNER, EDWIN F., *Captain and Assistant Surgeon.*—Granted leave of absence for two months.—*S. O. 158, A. G. O.*, July 10, 1886.

KANE, J. J., *Captain and Assistant Surgeon.*—Ordered from Fort Ringgold, Texas, to Fort Hancock, Texas.—*S. O. 85, Department of Texas*, July 13, 1886.

CARTER, WM. F., *Captain and Assistant Surgeon.*—Ordered from Fort Concho, Texas, to Fort Ringgold, Texas.—*S. O. 85, Department of Texas*, July 13, 1886.

OWEN, WM. O., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Schuyler, New York Harbor.—*S. O. 84, Division of the Atlantic*, July 15, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 18, 1886.

WENTWORTH, A. R., *Assistant Surgeon.*—Detached from the U. S. Steamer "Brooklyn" and wait orders.

NORTON, OLIVER D., *Assistant Surgeon.*—Detached from the U. S. Steamer "Minnesota," and to the U. S. Steamer "Brooklyn."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING JULY 17, 1886.

WHITE, J. H., *Assistant Surgeon.*—Granted leave of absence for thirty days, July 12, 1886.

PETTUS, W. J., *Assistant Surgeon.*—When relieved at Charleston, S. C., to proceed to Savannah, Ga., for temporary duty, July 9, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*